



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous Institution under UGC, New Delhi)
Recognized under 2(f) and 12(B) of UGC Act 1956
NBA Accredited, Approved by AICTE and Permanently affiliated to JNTUH
Sheriguda (V), Ibrahimpatnam R.R.Dist, Hyderabad - 501 510

D4
BR-20

LR.NO.SICET/AUTO/DAE/BR-20/ACADEMIC CAL/200/2020

DATE: 24.11.2020

Dr.G. SURESH,
Principal,

To,
All the HODs

Sir,

Sub: SICET(Autonomous) - Academic & Evaluation - Academic Calendar for
I B.Tech - I & II Semester for the academic year 2020-21 - Reg.

The approved Academic Calendar for I B.Tech - I & II Semester for the academic year
2020-21 is given below:

ACADEMIC CALENDAR - I B.TECH - I & II SEMESTER
ADMITTED BATCH - 2020-2021 of BR-20 Regulation

I SEMESTER

SNO	EVENT	PERIOD	DURATION
1.	Induction & Orientation Programme	01.12.2020	
2.	1 st Spell of Instructions for covering First Two and a half Units	01.12.2020 - 23.01.2021	8 Weeks
3.	I Mid Examinations	25.01.2021 - 30.01.2021	1 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	01.02.2021 - 27.03.2021	8 Weeks
5.	II Mid Examinations	29.03.2021 - 06.04.2021	1 Week
6.	Preparation & Practical Examinations	07.04.2021 - 12.04.2021	1 Week
7.	I Semester End Examinations (Regular)	15.04.2021 - 29.04.2021	2 Weeks
8.	Supplementary Examinations for I Semester (BR-12, BR-14, BR-16 & BR-18 Regulations)	15.04.2021 - 29.04.2021	2 Weeks
9.	Supplementary Examinations for II Semester (BR-12, BR-14, BR-16 & BR-18 Regulations)	30.04.2021 - 12.05.2021	2 Weeks

Commencement of Class-Work for I B.Tech - II Semester 30.04.2021

II SEMESTER

SNO	EVENT	PERIOD	DURATION
1.	Commencement of II Sem Class Work	30.04.2021	
2.	1 st Spell of Instructions for covering First Two and a half Units	30.04.2021 - 24.06.2021	8 Weeks
3.	I Mid Examinations	25.06.2021 - 30.06.2021	1 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	01.07.2021 - 25.08.2021	8 Weeks
5.	II Mid Examinations	26.08.2021 - 01.09.2021	1 Week
6.	Preparation & Practical Examinations	02.09.2021 - 08.09.2021	1 Week
7.	II Semester End Examinations (Regular/Suppl.)	09.09.2021 - 22.09.2021	2 Weeks
8.	Supplementary Examinations for I Semester (BR-12, BR-14, BR-16 & BR-18 Regulations)	23.09.2021 - 06.10.2021	2 Weeks

Commencement of Class Work for II B.Tech - I Semester - 20.10.2021

Note: Until further instructions online classes will be continued.

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ADDITIONAL CONTROLLER OF EXAMINATIONS
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BR-16 & BR-18

Lr.No. SICET/AUTO/DAE/Academic Calendar/203/2020

Dt: 05.12.2020

Dr.G. SURESH,
Principal,

To,
All the HODs

REVISED ACADEMIC CALENDAR

Sir,

Sub:SICET (Autonomous) - Academic & Evaluation - Revised Academic Calendar for
B.Tech - 2nd, 3rd & 4th Year - For the academic year **2020-21** - Reg.

The approved Revised Academic Calendar for **B.Tech - 2nd, 3rd & 4th Year** for the Academic year **2020-21** is given below:

- **B.Tech 2nd Year for (2019 - 20 Batch) BR - 18 Regulation**
- **B.Tech 3rd Year for (2018 - 19 Batch) BR - 18 Regulation**
- **B.Tech 4th Year for (2017 - 18 Batch) BR - 16 Regulation**

Revised Academic Calendar for B.Tech - 2nd, 3rd & 4th Year Students

I Semester

Commencement of class work	24.08.2020 (Monday)	
I Spell of Instructions (Including CRT & Dasara Holidays)	24.08.2020	31.10.2020 - 10 Weeks
Regular End Semester Examinations of Previous Semester (Including Lab Exams)	02.11.2020	11.12.2020 - 6 Weeks
II Spell of Instructions	14.12.2020	13.02.2021 - 9 Weeks
I Mid Examinations for II, III & IV Year Students	21.12.2020	28.12.2020 - 1 Week
II Mid Examinations for II, III & IV Year Students	15.02.2021	20.02.2021 - 1 Week
Practical Classes	22.02.2021	27.02.2021 - 1 Week
Preparations & Practical Examinations	01.03.2021	06.03.2021 - 1 Week
II, III & IV Semester End Examinations (Regular)	08.03.2021	20.03.2021 - 2 Weeks
Supplementary Examinations	22.03.2021	06.04.2021 - 2 Weeks
Commencement of class work of 2 nd , 3 rd & 4 th Year II Semester - 22.03.2021 (Monday)		

II Semester

Commencement of class work	22.03.2021 (Monday)	
I Spell of Instructions	22.03.2021	15.05.2021 - 8 Weeks
Summer Vacation	17.05.2021	29.05.2021 - 2 Weeks
I Mid Examinations for II, III & IV Year Students	31.05.2021	05.06.2021 - 1 Week
II Spell of Instructions	07.06.2021	31.07.2021 - 8 Weeks
II Mid Examinations for II, III & IV Year Students	02.08.2021	07.08.2021 - 1 Week
Preparation & Project Evaluation (IV B.Tech)	09.08.2021	14.08.2021 - 1 Week
Preparations & Practical Examinations For (II & III B.Tech)	09.08.2021	14.08.2021 - 1 Week
End Semester Examinations for (II, III & IV B.Tech)	16.08.2021	28.08.2021 - 2 Weeks
Supplementary Examinations	31.08.2021	14.09.2021 - 2 Weeks
Commencement of class work for the A.Y 2021-22 01.09.2021 (Wednesday)		

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ADDITIONAL CONTROLLER OF EXAMINATIONS, SAI INDU COLLEGE OF ENGINEERING & TECHNOLOGY, SHERIGUDA (V), IBRAHIMPATNAM, R.R.DIST, HYDERABAD - 501 510.

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D4
MR-18

Lr.No.SICET/AUTO/DAE/MR-20/ACADEMIC CALENDAR/ /2020 Dt: 16.12.2020

Dr. G.Suresh,
Principal.

To
The HOD,
Sir,

Sub: SICET(Autonomous) - Academic & Evaluation - Academic Calendar for
M.Tech (Regular) for the academic year 2020-21 & 2021-22 - Reg.

The approved Academic Calendar for **M.Tech - I Sem, II Sem, III Sem & IV Semester**
(Regular) for the academic year 2020-21 & 2021-22 is given below:

M. Tech - I Semester for Admitted Batch - 2020-21, MR-20 Regulations

Orientation Programme	16.12.2020	
I Spell of Instructions	16.12.2020 - 06.02.2021	8 Weeks
I Mid Examinations	08.02.2021 - 13.02.2021	1 Week
II Spell of Instructions	15.02.2021 - 10.04.2021	8 Weeks
II Mid Examination	12.04.2021 - 17.04.2021	1 Week
Practical classes	19.04.2021 - 24.04.2021	1 Week
Preparation & Practical End Examinations	26.04.2021 - 01.05.2021	1 Week
End Semester Examination (Regular & all Supplementary)	03.05.2021 - 15.05.2021	2 Weeks
Commencement of class work for II semester	17.05.2021	

M. Tech - II Semester for Admitted Batch - 2019-20, MR-18 Regulations

I Spell of Instructions Commencement	17.05.2021	
I Spell of Instructions;	17.05.2021 - 10.07.2021	08 Weeks
I Mid Examinations	12.07.2021 - 17.07.2021	01 Week
II Spell of Instructions	19.07.2021 - 11.09.2021	08 Weeks
II Mid Examination	13.09.2021 - 18.09.2021	01 Week
Preparation & Practical End Examinations	20.09.2021 - 25.09.2021	01 Week
End Semester Examination (Regular & all Supplementary)	27.09.2021 - 09.10.2021	02 Weeks
Semester Break	12.10.2021 - 18.10.2021	01 Weeks

M.Tech - III - Semester

Project Work Commencement:	20.10.2021 onwards	(19 Weeks)
Comprehensive Viva-Voce:	02.02.2022 to 15.02.2022	(02 Weeks)
Project Work Review-I:	16.02.2022 to 01.03.2022	(02 Weeks)

M.Tech - IV - Semester

Continuation of Project Work:	02.03.2022	(19 Weeks)
Project Work Review-II:	15.06.2022 to 28.06.2022	(02 Weeks)
Project Evaluation (Viva-Voce):	29.06.2022 to 12.07.2022	(02 Weeks)

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D4

MR-18

Lr.No.SICET/AUTO/DAE/MR-18/Academic Calendar/128/2020

Dt: 01.09.2020

Dr. G.SURESH,
Principal.

To
The MBA Principal,
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA II Year - I Semester for the academic year **2020-21** - Reg.

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The approved Academic Calendar for MBA II Year - I Semester for the
academic year 2020-21 is given below:

ACADEMIC CALENDAR MBA II YEAR - I SEMESTER
FOR ADMITTED BATCH 2019-20 (MR-18 Regulation)

SNO	EVENT	PERIOD	DURATION
1.	Commencement of III semester class work	01.09.2020	
2.	1 st Spell of Instructions for covering First Two and a half Units (Including Dussehra Holidays)	01.09.2020 - 31.10.2020	9 Weeks
3.	I Mid Examinations	02.11.2020 - 07.11.2020	1 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	09.11.2020 - 02.01.2021	8 Weeks
5.	II Mid Examinations	04.01.2021 - 09.01.2021	1 Week
6.	Preparation holidays & Practical End Examinations	11.01.2021 - 16.01.2021	1 Week
7.	III Semester End Examinations for (Regular/Suppl. MR-18 & MR-16 Regulations)	18.01.2021 - 30.01.2021	2 Weeks
8.	II Semester -Supplementary Examinations for (MR-18 & MR-16 Regulations)	01.02.2021 - 12.02.2021	2 Weeks
Commencement of Class-Work for MBA IV Semester - 01.02.2021			

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BR-18

Lr.No. SICET/AUTO/DAE/BR-18/Academic Cal/62/2019

Date: 02.08.2019

Dr. P. MALLESHAM,
Principal.

To,
All the HODs
Sir,

Sub: SICET(Autonomous) - Academic & Evaluation - Academic Calendar for
I B.Tech - I & II Semester for the academic year **2019-20** - Reg.

The approved Academic Calendar for **I B.Tech - I & II Semester** for the academic year **2019-20** is given below:

ACADEMIC CALENDAR - I B.TECH - I & II SEMESTER
ADMITTED BATCH - 2019-20 of BR-18 Regulation

I SEMESTER

SNO	EVENT	PERIOD	DURATION
1.	Induction & Orientation Programme	02.08.2019 - 14.08.2019	2 Weeks
2.	1 st Spell of Instructions for covering First Two and a half Units (Including Dussehra Holidays)	16.08.2019 - 16.10.2019	9 Weeks
3.	I Mid Examinations	17.10.2019 - 19.10.2019	3 Days
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	21.10.2019 - 11.12.2019	8 Weeks
5.	II Mid Examinations	12.12.2019 - 14.12.2019	3 Days
6.	Preparation & Practical Examinations	16.12.2019 - 21.12.2019	1 Week
7.	I Semester End Examinations (Regular)	23.12.2019 - 04.01.2020	2 Week
8.	Supplementary Examinations for I Semester (BR-12, BR-14, BR-16 & BR-18 Regulations)	23.12.2019 - 04.01.2020	2 Week

Commencement of Class-Work for I B.Tech - II Semester - 06.01.2020

II SEMESTER

SNO	EVENT	PERIOD	DURATION
	Commencement of Class Work	06.01.2020	
1.	1 st Spell of Instructions for covering First Two and a half Units	06.01.2020 - 26.02.2020	8 Weeks
2.	I Mid Examinations	27.02.2020 - 29.02.2020	3 Days
3.	2 nd Spell of Instructions for covering Remaining Two and a half Units	02.03.2020 - 22.04.2020	8 Weeks
4.	II Mid Examinations	23.04.2020 - 25.04.2020	3 Days
5.	Preparation & Practical Examinations	27.04.2020 - 04.05.2020	1 Week
6.	II Semester End Examinations (Regular/Suppl.)	05.05.2020 - 15.05.2020	1 Week- 4 Days
7.	Supplementary Examinations for I Semester (BR-12, BR-14, BR-16 & BR-18 Regulations)	06.05.2020 - 16.05.2020	1 Week- 4 Days
8.	Summer Break	17.05.2020 - 31.05.2020	2 Weeks

Commencement of Class Work for II B.Tech - I Semester - 01.06.2020

** Mid Term Examinations are to be conducted during both forenoon and afternoon sessions and they are to be completed within 3 working days as per the schedule given above.

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BR-16 & BR-18

Lr.No. SICET/AUTO/DAE/Academic Calendar/478/2019

Dt: 26.11.2019

Dr.P.MALLESHAM,
Principal,

To,
All the HODs

RE - REVISED ACADEMIC CALENDAR

Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
B.Tech - 2nd & 3rd - For the academic year **2019-20** - Reg.

The approved Academic Calendar for **B.Tech - 2nd & 3rd** for the academic year **2019-20** is given below:

- **B.Tech 2nd Year for (2018 - 19 Batch) BR - 18 Regulation**
- **B.Tech 3rd Year for (2017 - 18 Batch) BR - 16 Regulation**

Academic Calendar for B.Tech - 2nd & 3rd Year Students

I Semester

Commencement of class work	10.06.2019 (Monday)	
I Spell of Instructions (GTP & Other Activities)	10.06.2019	17.08.2019 - 9 Weeks - 4 Days
I Mid Examinations for II, III year Students	19.08.2019	21.08.2019 - 3 Days
II Spell of Instructions (Including Dasara Holidays)	22.08.2019	23.10.2019 - 9 Weeks
II Mid Examinations for II & III Year Students	24.10.2019	26.10.2019 - 3 Days
Preparations & Practical Examinations	28.10.2019	02.11.2019 - 1 Week
II & III Semester End Examinations (Regular)	04.11.2019	25.11.2019 - 3 Weeks
Supplementary Examinations	26.11.2019	16.12.2019 - 3 Weeks

Commencement of class work of 2nd & 3rd Year II Semester - 04.12.2019 (Wednesday)

II Semester

Commencement of class work	04.12.2019 (Wednesday)	
I Spell of Instructions (Including Pongal Holidays)	04.12.2019	01.02.2020 - 8 Weeks - 4 Days
I Mid Examinations for II & III Year Students	03.02.2020	05.02.2020 - 3 Days
II Spell of Instructions	06.02.2020	01.04.2020 - 8 Weeks
II Mid Examinations for II & III Year Students	03.04.2020	06.04.2020 - 4 Days
Preparations & Practical Examinations For II & III Year Students	07.04.2020	15.04.2020 - 1 Week - 2 Days
End Semester Examinations for II & III Year Students	16.04.2020	29.04.2020 - 2 Weeks
Supplementary Examinations	30.04.2020	13.05.2020 - 2 Weeks
Summer Break	14.05.2020	06.06.2020 - 3 Weeks - 3 Days

Commencement of class work for the A.Y 2020-21 08.06.2020 (Monday)

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ADDITIONAL CONTROLLER OF EXAMINATIONS

CONTROLLER OF EXAMINATIONS

DEAN, ACADEMIC AFFAIRS & EVALUATION

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BR-16

Lr.No. SICET/AUTO/DAE/Academic Calendar/484/2019

Dt: 13.12.2019

Dr.P.MALLESHAM,
Principal,

To,
All the HODs

RE- REVISED ACADEMIC CALENDAR

Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
B.Tech - 4th Year - For the academic year **2019-20** - Reg.

The approved Academic Calendar for **B.Tech - 4th Year** for the academic year
2019-20 is given below:

- **B.Tech 4th Year for (2016 - 17 Batch) BR - 16 Regulation**

Academic Calendar for B.Tech - 4th Year Students

I Semester

Commencement of class work	10.06.2019 (Monday)	
I Spell of Instructions (GTP & Other Activities)	10.06.2019	17.08.2019 - 9 Weeks - 4 Days
I Mid Examinations for IV Year Students	19.08.2019	21.08.2019 - 3 Days
II Spell of Instructions (Including Dasara Holidays & TSRTC Strike)	22.08.2019	20.11.2019 - 13 Weeks
II Mid Examinations for IV Year Students	21.11.2019	27.11.2019 - 1 Week
Preparations & Practical Examinations	28.11.2019	03.12.2019 - 1 Week
IV Semester End Examinations (Regular)	04.12.2019	16.12.2019 - 2 Weeks
Supplementary Examinations	04.12.2019	16.12.2019 - 2 Weeks
Commencement of class work of 4 th Year II Semester - 18.12.2019 (Wednesday)		

II Semester

Commencement of class work	18.12.2019 (Wednesday)	
I Spell of Instructions	18.12.2019	12.02.2020 - 8 Weeks
I Mid Examinations for IV Year Students	13.02.2020	15.02.2020 - 3 Days
II Spell of Instructions	17.02.2020	11.04.2020 - 8 Weeks
II Mid Examinations for IV Year Students	13.04.2020	16.04.2020 - 4 Days
Preparation & Project Evaluation (IV B.Tech)	17.04.2020	25.04.2020 - 1 Week 2 Days
End Semester Examinations for IV B.Tech	27.04.2020	01.05.2020 - 1 Week
Supplementary Examinations	04.05.2020	16.05.2020 - 2 Weeks

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Prof.Dr. Ch.GVN Prasad Sir, request to place in the College Website Portal

CONTROLLER OF EXAMINATIONS
Sri Indu College of Engineering & Technology
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PRINCIPAL
Sri Indu College of Engineering and Technology
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SHERIGUDA-501 510,
Ibrahimpatnam(M), R.R.Dist.

ADDITIONAL CONTROLLER OF EXAMINATIONS
Sri Indu College of Engineering & Technology
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MR-18

AC-11

Lr.No.SICET/AUTO/DAE/MR-18/ACADEMIC CALENDAR/383/2019

Dt: 03.09.2019

Dr. P.MALLESHAM,
Principal.

To
The HOD,

Sir,

Sub: SICET(Autonomous) - Academic & Evaluation - Academic Calendar for
M.Tech (Regular) for the academic year 2019-20 & 2020-21 - Reg.

The approved Academic Calendar for **M.Tech - I Sem, II Sem, III Sem & IV Semester**
(Regular) for the academic year 2019-20 & 2020-21 is given below:

M. Tech - I Semester for Admitted Batch - 2019-20, MR-18 Regulations

Orientation Programme	05.09.2019	
I Spell of Instructions (Including Dusseshra Holidays)	05.09.2019 - 02.11.2019	8 Weeks -3 Days
I Mid Examinations	04.11.2019 - 09.11.2019	1 Week
II Spell of Instructions	11.11.2019 - 04.01.2020	8 Weeks
II Mid Examination	06.01.2020 - 11.01.2020	1 Week
Preparation & Practical End Examinations	13.01.2020 - 21.01.2020	1 Week - 2 Days
I Semester Regular/Suppl. End Examinations (MR-16 & MR-18 Regulations)	22.01.2020 - 04.02.2020	2 Weeks
II Semester Suppl. End Examinations for (MR-16 & MR-18 Regulations)	23.01.2020 - 05.02.2020	2 Weeks
Commencement of class work for II semester	06.02.2020	

M. Tech - II Semester for Admitted Batch - 2019-20, MR-18 Regulations

I Spell of Instructions Commencement	06.02.2020	
I Spell of Instructions;	06.02.2020 - 01.04.2020	08 Weeks
I Mid Examinations	03.04.2020 - 09.04.2020	01 Week
II Spell of Instructions	10.04.2020 - 04.06.2020	08 Weeks
II Mid Examination	05.06.2020 - 11.06.2020	01 Week
Preparation & Practical End Examinations	12.06.2020 - 20.06.2020	01 Week-2 Days
II Semester Regular/Suppl. End Examinations (MR-16 & MR-18 Regulations)	22.06.2020 - 04.07.2020	02 Weeks
I Semester Suppl. End Examinations (MR-16 & MR-18 Regulations)	23.06.2020 - 06.07.2020	02 Weeks
Semester Break	06.07.2020 - 11.07.2020	01 Weeks

M.Tech - III - Semester

Project Work Commencement:	13.07.2020 onwards	(19 Weeks)
Comprehensive Viva-Voce:	24.08.2020 to 05.09.2020	(02 Weeks)
Project Work Review-I:	09.11.2020 to 21.11.2020	(02 Weeks)

M.Tech - IV - Semester

Continuation of Project Work:	23.11.2020	(19 Weeks)
Project Work Review-II:	08.03.2021 to 20.03.2021	(02 Weeks)
Project Evaluation (Viva-Voce):	22.03.2021 to 03.04.2021	(02 Weeks)

ADDITIONAL CONTROLLER OF EXAMINATIONS
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

CONTROLLER OF EXAMINATIONS
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

DEAN
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

Principal
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

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Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

D4

MR-18

AC-29

Lr.No.SICET/AUTO/DAE/MR-18/Academic Calendar/382/2019

Dt: 03.09.2019

Dr. P.MALLESHAM,
Principal.

To
The MBA Principal,
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA I Year - I Semester for the academic year **2019-20** - Reg.

The approved Academic Calendar for MBA I Year - I Semester for the
academic year 2019-20 is given below:

ACADEMIC CALENDAR MBA I YEAR - I SEMESTER FOR ADMITTED BATCH 2019-20 (MR-18 Regulation)

SNO	EVENT	PERIOD	DURATION
1.	Orientation Programme	05.09.2019	
2.	1 st Spell of Instructions for covering First Two and a half Units (Including Dussehra Holidays)	05.09.2019 - 02.11.2019	8 Weeks - 3 Days
3.	I Mid Examinations	04.11.2019 - 09.11.2019	1 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	11.11.2019 - 04.01.2020	8 Weeks
5.	II Mid Examinations	06.01.2020 - 11.01.2020	1 Week
6.	Preparation & Practical End Examinations	13.01.2020 - 21.01.2020	1 Week - 2 Days
7.	I Semester End Examinations for (Regular/Suppl. MR-16 & MR-18 Regulations)	22.01.2020 - 04.02.2020	2 Weeks
8.	II Semester -Supplementary Examinations for (MR-16 & MR-18 Regulations)	23.01.2020 - 05.02.2020	2 Weeks
Commencement of Class-Work for MBA II Semester - 06.02.2020			

ADDITIONAL CONTROLLER OF EXAMINATIONS

Sri Indu College of Engineering & Technology

(An Autonomous Institution under JNTUH)

Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

Copy to:-

The Placement Officer

Dr. CH. GVN Prasad with a request to place in the College Website Portal.

CE

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PRINCIPAL

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CONTROLLER OF EXAMINATIONS

Sri Indu College of Engineering & Technology

(An Autonomous Institution under JNTUH)

Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

DEAN, ACADEMIC AFFAIRS & EVALUATION

Sri Indu College of Engineering & Technology

(An Autonomous Institution under JNTUH)

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D4

MR-18

Lr.No. SICET/AUTO/DAE/MR-18/Academic Calendar/32-A/2020 Date: 03.02.2020

Dr.P.MALLESHAM,
Principal.

To
The HOD
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA - I Year - II Semester (Regular 2019-20 Batch) for the academic
year 2020-21 - Reg.

The approved Academic Calendar for **MBA I Year - II Semester (2019-20 Batch)**
for the academic year 2020-21 is given below:

ACADEMIC CALENDAR MBA - I YEAR - II SEMESTER FOR ADMITTED BATCH 2019-20

SNO	EVENT	PERIOD	DURATION
1.	Commencement of class work	06.02.2020	
2.	1 st Spell of Instructions for covering First Two and a half Units	06.02.2020 - 01.04.2020	08 Weeks
3.	I Mid Examinations Timings: 10.00 AM to 12.00 Noon	03.04.2020 - 09.04.2020	01 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	10.04.2020 - 04.06.2020	08 Weeks
5.	II Mid Examinations Timings: 10.00 AM to 12.00 Noon	05.06.2020 - 11.06.2020	01 Week
6.	Preparation and End Practical Examinations	12.06.2020 - 20.06.2020	01 Week
7.	II Semester End Examinations (MR-18 Regular) & MR-16 Supplementary Examinations	22.06.2020 - 04.07.2020	02 Weeks
7.	I Semester End Examinations (Suppl) (MR-16 & MR-18 regulations)	23.06.2020 - 06.07.2020	02 Weeks
8.	Semester Break	07.07.2020 - 11.07.2020	01 Week
Commencement of Class-Work for MBA III Semester - 13.07.2020			

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Copy To, **CONTROLLER OF EXAMINATIONS**, **DEAN, ACADEMIC AFFAIRS & EVALUATION**, **PRINCIPAL**
The MBA Convenor, Sri Indu College of Engineering & Technology, Sri Indu College of Engineering & Technology, Sri Indu College of Engineering & Technology
Prof. CH. GVN Prasad, Vice-Chancellor, Sri Indu College of Engineering & Technology, Sri Indu College of Engineering & Technology
Sheriguda (V), Ibrahimpatnam, R.R.Dist. 501510, Sheriguda (V), Ibrahimpatnam, R.R.Dist. 501510, Sheriguda (V), Ibrahimpatnam, R.R.Dist. 501510



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D4

MR-18

Lr.No.SICET/AUTO/DAE/MR-18/Academic Calendar/128/2020

Dt: 01.09.2020

Dr. G.SURESH,
Principal.

To
The MBA Principal,
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA II Year - I Semester for the academic year **2020-21** - Reg.

The approved Academic Calendar for MBA II Year - I Semester for the
academic year 2020-21 is given below:

**ACADEMIC CALENDAR MBA II YEAR - I SEMESTER
FOR ADMITTED BATCH 2019-20 (MR-18 Regulation)**

SNO	EVENT	PERIOD	DURATION
1.	Commencement of III semester class work	01.09.2020	
2.	1 st Spell of Instructions for covering First Two and a half Units (Including Dussehra Holidays)	01.09.2020 - 31.10.2020	9 Weeks
3.	I Mid Examinations	02.11.2020 - 07.11.2020	1 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	09.11.2020 - 02.01.2021	8 Weeks
5.	II Mid Examinations	04.01.2021 - 09.01.2021	1 Week
6.	Preparation holidays & Practical End Examinations	11.01.2021 - 16.01.2021	1 Week
7.	III Semester End Examinations for (Regular/Suppl. MR-18 & MR-16 Regulations)	18.01.2021 - 30.01.2021	2 Weeks
8.	II Semester -Supplementary Examinations for (MR-18 & MR-16 Regulations)	01.02.2021 - 12.02.2021	2 Weeks
Commencement of Class-Work for MBA IV Semester - 01.02.2021			

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Srinthy
PRINCIPAL

ADDITIONAL CONTROLLER OF EXAMINATIONS

Sri Indu College of Engineering & Technology
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CONTROLLER OF EXAMINATIONS

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DEAN, ACADEMIC AFFAIRS & EVALUATION

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D4

BR-18

Lr.No. SICET/AUTO/DAE/BR-18/Academic Cal/278/2018

Date: 14.07.2018

Dr. P. MALLESHAM,
Principal.

To,
All the HODs
Sir,

Sub: SICET(Autonomous) - Academic & Evaluation - Academic Calendar for
I B.Tech - I & II Semester for the academic year 2018-19 - Reg.

The approved Academic Calendar for I B.Tech - I & II Semester for the academic year 2018-19 is given below:

ACADEMIC CALENDAR - I B.TECH - I & II SEMESTER ADMITTED BATCH - 2018-19 of BR-18 Regulation

I SEMESTER

SNO	EVENT	PERIOD	DURATION
1.	Induction & Orientation Programme	16.07.2018 to 28.07.2018	2 Weeks
2.	1 st Spell of Instructions for covering First Two and a half Units	30.07.2018 to 22.09.2018	8 Weeks
3.	I Mid Examinations	24.09.2018 to 26.09.2018	3 Days
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units (Including Dussehra Holidays)	27.09.2018 to 28.11.2018	9 Weeks
5.	II Mid Examinations	29.11.2018 to 01.12.2018	3 Days
6.	Preparation & Practical Examinations	03.12.2018 to 15.12.2018	2 Weeks
7.	I Semester End Examinations (Regular)	17.12.2018 to 31.12.2018	2 Weeks
8.	Supplementary Examinations for (BR-12, BR-14 & BR-16 Regulations)	17.12.2018 to 31.12.2018	2 Weeks

Commencement of Class-Work for I B.Tech - II Semester - 02.01.2019

II SEMESTER

SNO	EVENT	PERIOD	DURATION
	Commencement of Class Work	02.01.2019	
1.	1 st Spell of Instructions for covering First Two and a half Units (Including Pongal Holidays)	02.01.2019 to 02.03.2019	8 Weeks - 4 Days
2.	I Mid Examinations	04.03.2019 to 06.03.2019	3 Days
3.	2 nd Spell of Instructions for covering Remaining Two and a half Units	07.03.2019 to 01.05.2019	8 Weeks
4.	II Mid Examinations	02.05.2019 to 04.05.2019	3 Days
5.	Preparation & Practical Examinations	06.05.2019 to 18.05.2019	2 Weeks
6.	II Semester End Examinations (Regular)	20.05.2019 to 01.06.2019	2 Weeks
7.	Supplementary Examinations for (BR-12, BR-14 & BR-16 Regulations)	03.06.2019 to 15.06.2019	2 Weeks

Commencement of Class Work for II B.Tech - I Semester - 17.06.2019

** Mid Term Examinations are to be conducted during both forenoon and afternoon sessions and they are to be completed within 3 working days as per the schedule given above.

Copy to

Copy to all the Heads of Departments of Engineering & Technology
Mr. Kannababu, request to place in the file of JNTUH.
(An Autonomous Institution under JNTUH)
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CONTROLLER OF EXAMINATIONS

DEAN, ACADEMIC AFFAIRS & EVALUATION

PRINCIPAL

Sri Indu College of Engineering & Technology
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Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

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D4

BR-14 & BR-16

Lr.No. SICET/AUTO/DAE/Academic Calendar/155/2018

Dt: 28.03.2018

Dr.P.MALLESHAM,
Principal,

To,
All the HODs

Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
B.Tech - 2nd, 3rd & 4th Year - For the academic year 2018-19 - Reg.

The approved Academic Calendar for **B.Tech - 2nd, 3rd & 4th Year** for the academic year 2018-19 is given below:

- **B.Tech 2nd Year for (2017 - 18 Batch) BR- 16 Regulation**
- **B.Tech 3rd Year for (2016 - 17 Batch) BR- 16 Regulation**
- **B.Tech 4th Year for (2015 - 16 Batch) BR- 14 Regulation**

Academic Calendar for B.Tech - 2nd, 3rd & 4th Year Students

1 Semester

I Semester		25.06.2018 (Monday)	
Commencement of class work			
I Spell of Instructions	25.06.2018	18.08.2018	- 8 Weeks
I Mid Examinations for II, III & IV Year Students	20.08.2018	27.08.2018	- 1 Week
II Spell of Instructions (Including Dasara Holidays)	28.08.2018	27.10.2018	- 9 Weeks
II Mid Examinations for II, III & IV Year Students	29.10.2018	03.11.2018	- 1 Week
Preparations & Practical Examinations	05.11.2018	17.11.2018	- 2 Week
II, III & IV Semester End Examinations (Regular)	19.11.2018	11.12.2018	- 3 Weeks
Supplementary Examinations	12.12.2018	05.01.2019	- 3 Weeks
Commencement of class work of 2 nd , 3 rd & 4 th Year II Semester - 12.12.2018 (Wednesday)			

II Semester

II Semester		12.12.2018 (Wednesday)
Commencement of class work	12.12.2018	05.02.2019 - 8 Weeks
I Spell of Instructions	06.02.2019	12.02.2019 - 1 Week
I Mid Examinations for II, III & IV Year Students	13.02.2019	09.04.2019 - 8 Weeks
II Spell of Instructions	10.04.2019	16.04.2019 - 1 Week
II Mid Examinations for II, III & IV Year Students	17.04.2019	24.04.2019 - 1 Week
Preparation & Project Evaluation (IV B.Tech)	17.04.2019	30.04.2019 - 2 Weeks
Preparations & Practical Examinations For (II & III B.Tech)	25.04.2019	30.04.2019 - 1 Week
End Semester Examinations for (IV B.Tech)	01.05.2019	14.05.2019 - 2 Weeks
End Semester Examinations for (II & III B.Tech)	15.05.2019	04.06.2019 - 3 Weeks
Supplementary Examinations	15.05.2019	01.06.2019 - 2 Weeks - 4 days
Summer Break		
Commencement of class work for the A.Y 2019-20		03.06.2019 (Monday)

CE 24/3/18
CONTROLLER OF EXAMINATIONS

DEAN

PRINCIPAL

CONTROLLER OF EXAMINATIONS, ACADEMIC AFFAIRS & EVALUATION
Sr. Copy to DAE of Engineering & Technology
Copy to all the Heads of the Departments
Sr. Mr. Kannababu Sir, request to place in the College Website Portal.com, R.R.Dist-501516
Sriindu College of Engineering & Technology
(An Autonomous Institution under JNTU)
Sriindu (V), Bheemipatnam, R.R.Dist-501516



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D4

AC-10

MR-18

Lr.No.SICET/AUTO/DAE/MR-18/ACADEMIC CALENDAR/ /2018
Dr. P.MALLESHAM,
Principal.

Dt: 30.08.2018

To
All the HODs

Sir,

Sub: SICET(Autonomous) - Academic & Evaluation - Academic Calendar for
M.Tech (Regular) for the academic year 2018-19 - Reg.

The approved Academic Calendar for **M.Tech - I Sem, II Sem, III Sem & IV Semester**
(Regular) for the academic year 2018-19 is given below:

M. Tech - I SEMESTER FOR ADMITTED BATCH - (2018-19)

Report and Orientation Programme	20.08.2018	
I Spell of Instructions (Including Dusseshra Holidays)	20.08.2018	23.10.2018 - 09 Weeks
I Mid Examinations	24.10.2018	30.10.2018 - 01 Week
II Spell of Instructions	31.10.2018	26.12.2018 - 08 Weeks
II Mid Examination	27.12.2018	03.01.2019 - 01 Week
Preparation & Practical Examinations (Including Pongal Holidays)	04.01.2019	17.01.2019 - 02 Week s
I Semester Regular End Examinations & Suppl. End Examinations	18.01.2019	02.02.2019 - 02 Weeks
Commencement of class work for II semester	04.02.2019	

M. Tech - II SEMESTER FOR ADMITTED BATCH - (2018-19)

I Spell of Instructions Commencement	04.02.2019	
I Spell of Instructions;	04.02.2019	30.03.2019 - 08 Weeks
I Mid Examinations	01.04.2019	08.04.2019 - 01 Week
II Spell of Instructions	09.04.2019	06.06.2019 - 08 Weeks
II Mid Examination	07.06.2019	13.06.2019 - 01 Week
Preparation & Practical Examinations	14.06.2019	22.06.2019 - 01 Week
II Semester Regular End Examinations & Suppl. End Examinations	24.06.2019	06.07.2019 - 02 Weeks
Semester Break	08.07.2019	13.07.2019 - 01 Weeks

M.Tech - III - Semester

Project Work Commencement: 15.07.2019 onwards (19 Weeks)
Comprehensive Viva-Voce: 26.08.2019 to 07.09.2019 (02 Weeks)
Project Work Review-I: 11.11.2019 to 23.11.2019 (02 Weeks)

M.Tech - IV - Semester

Continuation of Project Work: 25.11.2019 (19 Weeks)
Project Work Review-II: 09.03.2020 to 21.03.2020 (02 Weeks)
Project Evaluation (Viva-Voce): 23.03.2020 to 04.04.2020 (02 Weeks)

CE 30/8/18
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510
Mr. Karma Babu with a request to place in the College Website Portal.

DEAN, ACADEMIC AFFAIRS & EVALUATION
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

Principal
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510



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D4

MR-18

Lr.No.SICET/AUTO/DAE/MR-18/Academic Calendar/13/2018

Dt: 01.08.2018

Dr.P.MALLESHAM,
Principal.

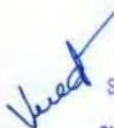
To
All the HODs
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA I Year - I Semester for the academic year **2018-19** - Reg.

The approved Academic Calendar for MBA First Year - First Semester for the
academic year 2018-19 is given below:

ACADEMIC CALENDAR MBA I YEAR - I SEMESTER FOR ADMITTED BATCH 2018-19

SNO	EVENT	PERIOD	DURATION
1.	Orientation Programme	01.08.2018	
2.	1 ST Spell of Instructions for covering First Two and a half Units	01.08.2018 - 26.09.2018	8 Weeks
3.	I Mid Examinations	27.09.2018 - 04.10.2018	1 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units (Including Dussehra Holidays)	05.10.2018 - 08.12.2018	9 Weeks
5.	II Mid Examinations	10.12.2018 - 15.12.2018	1 Week
6.	Preparation & End Practical Examinations	17.12.2018 - 27.12.2018	1 Week - 4 Days
7.	I Semester End Examinations(Regular)	28.12.2018 - 10.01.2019	2 Weeks
8.	Supplementary Examinations for (MR-14, MR-16 Regulations)	28.12.2018 - 10.01.2019	2 Weeks
Commencement of Class-Work for MBA II Semester - 17.01.2019			


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CONTROLLER OF EXAMINATIONS
Sri Indu College of Engineering & Technology,
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Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510.


DEAN
DEAN, ACADEMIC AFFAIRS & EVALUATION
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510


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**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**

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Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

D4

MR-18

AC-26

Lr.No. SICET/AUTO/DAE/MR-18/Academic Calendar/01/2019

Date: 02.01.2019

Dr.P.MALLESHAM,
Principal.

To
The HOD
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA - I Year - II Semester (Regular 2018-19 Batch) for the academic
year 2018-19 - Reg.

The approved Academic Calendar for **MBA - I Year - II Semester (2018-19 Batch)**
for the academic year 2018-19 is given below:

**ACADEMIC CALENDAR MBA - I YEAR - II SEMESTER
FOR ADMITTED BATCH 2018-19**

SNO	EVENT	PERIOD	DURATION
1.	Commencement of class work	17.01.2019	
2.	1 st Spell of Instructions for covering First Two and a half Units	17.01.2019 - 13.03.2019	08 Weeks
3.	I Mid Examinations Timings: 10.00 AM to 12.00 Noon	14.03.2019 - 20.03.2019	01 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	22.03.2019 - 18.05.2019	08 Weeks
5.	II Mid Examinations Timings: 10.00 AM to 12.00 Noon	20.05.2019 - 25.05.2019	01 Week
6.	Preparation and End Practical Examinations	27.05.2019 - 01.06.2019	01 Week
7.	II Semester End Examinations (Regular) & Supplementary Examinations	03.06.2019 - 18.06.2019	02 Weeks
8.	Semester Break	19.06.2019 - 25.06.2019	01 Week
Commencement of Class-Work for MBA III Semester - 26.06.2019			

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CONTROLLER OF EXAMINATIONS
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
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DEAN
DEAN, ACADEMIC AFFAIRS & EVALUATION
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

PRINCIPAL
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510.

Prof. CH. GVN Prasad with a request to place in the College Website Portal.



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

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D4

BR-16

Lr.No. SICET/AUTO/DAE/BR-16/Academic Cal/132/2017

Date: 22.07.2017

Dr.P.MALLESHAM,
Principal.

To,
All the HODs
Sir,

Sub: SICET(Autonomous) - Academic & Evaluation - Academic Calendar for
I B.Tech - I & II Semester for the academic year 2017-18 - Reg.

The approved Academic Calendar for I B.Tech - I & II Semester for the academic year 2017-18 is given below:

ACADEMIC CALENDAR - I B.TECH - I & II SEMESTER ADMITTED BATCH - 2017-18 of BR-16 Regulation

I SEMESTER

SNO	EVENT	PERIOD	DURATION
1.	Induction & Orientation Programme	24.07.2017 to 29.07.2017	1 Week
2.	1 st Spell of Instructions for covering First Two and a half Units (Including Dussera Holidays)	31.07.2017 to 04.10.2017	9 Weeks-3Days
3.	I Mid Examinations	05.10.2017 to 07.10.2017	3 Days
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	09.10.2017 to 02.12.2017	8 Weeks
5.	II Mid Examinations	04.12.2017 to 06.12.2017	3 Days
6.	Preparation & Practical Examinations	07.12.2017 to 27.12.2017	2 Weeks-4 Days
7.	I Semester End Examinations (Regular) & Supplementary Examinations	28.12.2017 to 10.01.2018	2 Weeks

Commencement of Class-Work for I B.Tech - II Semester - 11.01.2018

II SEMESTER

SNO	EVENT	PERIOD	DURATION
	Commencement of Class Work	11.01.2018	
	1 st Spell of Instructions for covering First Two and a half Units (Including Pongal Holidays)	11.01.2018 to 10.03.2018	8 Weeks-3Days
2.	I Mid Examinations	12.03.2018 to 14.03.2018	3 Days
3.	2 nd Spell of Instructions for covering Remaining Two and a half Units	15.03.2018 to 09.05.2018	8 Weeks
4.	II Mid Examinations	10.05.2018 to 12.05.2018	3 Days
5.	Preparation & Practical Examinations	14.05.2018 to 02.06.2018	3 Weeks
6.	II Semester End Examinations (Regular)	04.06.2018 to 16.06.2018	2 Weeks
7.	Supplementary Examinations	18.06.2018 to 30.06.2018	2 Weeks

Commencement of Class Work for II B.Tech - I Semester - 18.06.2018 (Monday)

** Mid Term Examinations are to be conducted during both forenoon and afternoon sessions and they are to be completed within 3 working days as per the schedule given above.

Signature
CE 22/7/17.

Signature
DEAN

Yours faithfully,

PRINCIPAL

Copy to

Copy to all the HODs and Deans

Mr. Kannababu, request to place in the College Website Portal.

(An Autonomous Institution under INTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

DEAN, ACADEMIC AFFAIRS & EVALUATION

Sri Indu College of Engineering & Technology

Portal. (An Autonomous Institution under INTUH)

Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

Sri Indu College of Engineering & Technology
(An Autonomous Institution under INTUH)

Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

Verat

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(An Autonomous Institution under UGC, New Delhi)
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Sheriguda (V), Ibrahimpatnam, R.R.Dist. Hyderabad - 501 510

D4

BR-14 & BR-16

Lr.No. SICET/AUTO/DAE/Academic Calendar/35/2017

Dt: 02.05.2017

Dr.P.MALLESHAM,
Principal,

To,
All the HODs

Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
B.Tech - 2nd, 3rd & 4th Year - For the academic year 2017-18 - Reg.

The approved Academic Calendar for **B.Tech - 2nd, 3rd & 4th Year** for the academic year 2017-18 is given below:

- **B.Tech 2nd Year for (2016-17 Batch) BR- 16 Regulation**
- **B.Tech 3rd Year for (2015-16 Batch) BR- 14 Regulation**
- **B.Tech 4th Year for (2014-15 Batch) BR- 14 Regulation**

Academic Calendar for B.Tech - 2nd, 3rd & 4th Year Students**I Semester**

Commencement of class work	15.06.2017 (Thursday)	
I Spell of Instructions	15.06.2017	09.08.2017 - 8 Weeks
I Mid Examinations for II, III & IV Year Students	10.08.2017	18.08.2017 - 1 Week - 2 Days
II Spell of Instructions	19.08.2017	21.10.2017 - 9 Weeks
(Including Dasara Holidays)		
II Mid Examinations for II, III & IV Year Students	23.10.2017	28.10.2017 - 1 Week
Preparations & Practical Examinations	30.10.2017	11.11.2017 - 2 Weeks
II, III & IV Semester End Examinations (Regular)	13.11.2017	04.12.2017 - 3 Weeks
Supplementary Examinations	05.12.2017	27.12.2017 - 3 Weeks
Commencement of class work of 2 nd , 3 rd & 4 th Year II Semester - 06.12.2017		

II Semester

Commencement of class work	06.12.2017 (Wednesday)	
I Spell of Instructions	06.12.2017	30.01.2018 - 8 Weeks
I Mid Examinations for II, III & IV Year Students	31.01.2018	06.02.2018 - 1 Week
II Spell of Instructions	07.02.2018	03.04.2018 - 8 Weeks
II Mid Examinations for II, III & IV Year Students	04.04.2018	11.04.2018 - 1 Week
Preparation & Project Evaluation (IV B.Tech)	12.04.2018	21.04.2018 - 1 Week - 3 Days
Preparations & Practical Examinations	12.04.2018	28.04.2018 - 2 Weeks - 3 Days
For (II & III B.Tech)		
End Semester Examinations for (IV B.Tech)	23.04.2018	28.04.2018 - 1 Week
End Semester Examinations for	30.04.2018	12.05.2018 - 2 Weeks
(II & III B.Tech)		
Supplementary Examinations	14.05.2018	02.06.2018 - 3 Weeks
Summer Break	14.05.2018	02.06.2018 - 3 Weeks

Commencement of class work for the A.Y 2018 -19 04.06.2018 (Monday)

** Mid Term Examinations are to be conducted during both forenoon and afternoon sessions and they are to be completed within 3 working days after the schedule given above.

Copy to DAE, CONTROLLER OF EXAMINATIONS

Copy to all the Heads of the Depts. & Technology

Mr. Kannababu Sir, request to place in the College Website Portal.

Sheriguda (V), Ibrahimpatnam, R.R.Dist. Hyderabad - 501 510

DEAN

PRINCIPAL

PRINCIPAL

DAE



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D4

AC-9

MR-16

Lr.No.SICET/AUTO/DAE/MR-16/ACADEMIC CALENDAR/19/2017

Dt: 09.09.2017

Dr. P.MALLESHAM,
Principal.

To
All the HODs

Sir,

Sub: SICET(Autonomous) - Academic & Evaluation - Academic Calendar for
M.Tech (Regular) for the academic year 2017-18 - Reg.

The approved Academic Calendar for M.Tech - I / II / III & IV Semester (Regular) for the
academic year 2017-18 is given below:

M. Tech – I SEMESTER FOR ADMITTED BATCH - (2017-18)

Report and Orientation Programme	11.09.2017	
I Spell of Instructions (Including Dusseshra Holidays)	11.09.2017	11.11.2017- 09 Weeks
I Mid Examinations	13.11.2017	18.11.2017- 01 Week
II Spell of Instructions	20.11.2017	17.01.2018- 08 Weeks – 3 Days
II Mid Examination	18.01.2018	24.01.2018- 01 Week
Preparation & Practical Examinations	25.01.2018	03.02.2018- 01 Week - 3 Days
I Semester Regular End Examinations & Suppl. End Examinations	05.02.2018	17.02.2018- 02 Weeks
Commencement of class work for II semester	19.02.2018	

M. Tech – II SEMESTER FOR ADMITTED BATCH - (2017-18)

I Spell of Instructions Commencement	19.02.2018	
I Spell of Instructions;	19.02.2018	14.04.2018 - 08 Weeks
I Mid Examinations	16.04.2018	21.04.2018 - 01 Week
II Spell of Instructions	23.04.2018	16.06.2018 - 08 Weeks
II Mid Examination	18.06.2018	23.06.2018 - 01 Week
Preparation & Practical Examinations	25.06.2018	30.06.2018 - 01 Week
II Semester Regular End Examinations & Suppl. End Examinations	02.07.2018	14.07.2018 - 02 Weeks
Semester Break	16.07.2018	28.07.2018 - 02 Weeks

M.Tech - III – Semester

Project Work Commencement:	30.07.2018 onwards	(19 Weeks)
Comprehensive Viva-Voce:	03.09.2018 to 15.09.2018	(02 Weeks)
Project Work Review-I:	26.11.2018 to 08.12.2018	(02 Weeks)

M.Tech - IV – Semester

Continuation of Project Work:	10.12.2018	(19 Weeks)
Project Work Review-II:	25.03.2019 to 06.04.2019	(02 Weeks)
Project Evaluation (Viva-Voce):	08.04.2019 to 20.04.2019	(02 Weeks)

CONTROLLER OF EXAMINATIONS

Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

DEAN, ACADEMIC AFFAIRS & EVALUATION

Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

Principal

PRINCIPAL

Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

Copy to,
Copy to all the Heads of the Depts.
The Placement Officer,
Mr. Kanna Babu with a request to place in the College Website Portal.

Neeraj

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D4

AC-21

MR-16

Lr.No.SICET/AUTO/DAE/MR-16/Academic Calendar/18/2017

Dt: 09.09.2017

Dr.P.MALLESHAM,
Principal.

To
All the HODs
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA I Year - I Semester for the academic year **2017-18** - Reg.

The approved Academic Calendar for MBA First Year - First Semester for the
academic year 2017-18 is given below:

**ACADEMIC CALENDAR MBA I YEAR - I SEMESTER
FOR ADMITTED BATCH 2017-18**

SNO	EVENT	PERIOD	DURATION
1.	Orientation Programme	11.09.2017	
2.	1 st Spell of Instructions for covering First Two and a half Units (Including Dussehra Holidays)	11.09.2017 - 11.11.2017	9 Weeks
3.	I Mid Examinations	13.11.2017 - 18.11.2017	1 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	20.11.2017 - 17.01.2018	8 Weeks - 3 Days
5.	II Mid Examinations	18.01.2018 - 24.01.2018	1 Week
6.	Preparation & End Practical Examinations	25.01.2018 - 03.02.2018	1 Week - 3 Days
7.	I Semester End Examinations(Regular) & Supplementary Examinations	05.02.2018 - 17.02.2018	2 Weeks
Commencement of Class-Work for MBA II Semester - 19.02.2018			

CE

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Sri Indu College of Engineering & Technology
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DEAN

DEAN, ACADEMIC AFFAIRS & EVALUATION
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

PRINCIPAL

PRINCIPAL
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

The Principal, MBA.
The Placement Officer
Mr. Kanna Babu with a request to place in the College Website Portal.



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Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

D4

AC-22

MR-16

Lr.No. SICET/AUTO/DAE/MR-16/Academic Calendar/01/2018

Date: 08.02.2018

Dr.P.MALLESHAM,
Principal.

To
The HOD
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA – I Year - II Semester (Regular 2017-18 Batch) for the academic
year 2017-18 – Reg.

The approved Academic Calendar for **MBA - I Year - II Semester (2017-18 Batch)**
for the academic year 2017-18 is given below:

ACADEMIC CALENDAR MBA – I YEAR - II SEMESTER
FOR ADMITTED BATCH 2017-18

SNO	EVENT	PERIOD	DURATION
1.	Commencement of class work	19.02.2018	
2.	1 st Spell of Instructions for covering First Two and a half Units	19.02.2018 - 13.04.2018	08 Weeks
3.	I Mid Examinations Timings: 10.00 AM to 12.00 Noon	16.04.2018 - 21.04.2018	01 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	23.04.2018 - 15.06.2018	08 Weeks
5.	II Mid Examinations Timings: 10.00 AM to 12.00 Noon	18.06.2018 - 23.06.2018	01 Week
6.	Preparation and End Practical Examinations	25.06.2018 - 30.06.2018	01 Week
7.	II Semester End Examinations (Regular) & Supplementary Examinations	02.07.2018 - 14.07.2018	02 Weeks
8.	Semester Break	16.07.2018 - 21.07.2018	01 Week
Commencement of Class-Work for MBA III Semester - 23.07.2018			

CE

8/2/18

DEAN

PRINCIPAL

Copy To,
The Principal, MBA,
Mr. Kannababu with a request to place in the College Website Portal.



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
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Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

D4

AC-23

MR-16

Lr.No: SICET/AUTO/DAE/MR-16/Academic Calendar/12/ 2018

Date: 13.07.2018

Dr. P. MALLESHAM,
Principal.

To
The HOD,
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA II Year – I Sem (III Semester) for the academic year 2018-19 – Reg.

The approved Academic Calendar for MBA III Semester (Regular) for the academic year 2018-19
is given below:

ACADEMIC CALENDAR
MBA II Year – I Sem (III) SEMESTER FOR ADMITTED BATCH 2017-18

SN	EVENT	PERIOD	DURATION
1.	Commencement of III Semester Class Work	23.07.2018	
2.	1 st Spell of Instructions for covering First Two and a half Units (Including Summer Internship-Seminar)	23.07.2018 - 15.09.2018	8 Weeks
3.	I Mid Examinations Timings: 10.00am To 12.00 Noon	17.09.2018 - 24.09.2018	1 Week
4.	2 nd Spell of Instructions for covering Remaining Two and a half Units	25.09.2018 - 24.11.2018	8 Weeks - 4 days
5.	II Mid Examinations Timings: 10.00am To 12.00 Noon	26.11.2018 - 01.12.2018	1 Week
6.	Preparation & Practical Examinations	03.12.2018 - 08.12.2018	1 Week
7.	III Semester End Examinations (Regular) & Supplementary Examinations	10.12. 2018 - 22.12.2018	2 Weeks
Commencement of Class-Work for MBA IV Semester - 27.12.2018 (Thursday)			

Signature
CE 13/7/18
CONTROLLER OF EXAMINATIONS
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510
The Principal, MBA.

Signature
DEAN, ACADEMIC AFFAIRS & EVALUATION
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510

Signature
PRINCIPAL
Sri Indu College of Engineering & Technology,
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510.

Mr. Kannababu with a request to place in the College Website Portal



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous Institution under UGC, New Delhi)
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NBA Accredited, Approved by AICTE and Permanently affiliated to JNTUH
Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

D4 **AC-24**

MR-16

Lr.No. SICET/AUTO/DAE/MR-16/Academic Calendar/25/2018

Dt: 04.12.2018

Dr. P. MALLESHAM,
Principal, SICET. IBP.

To
The Principal,
Sri Indu Institute of Management.
Sir,

Sub: SICET (Autonomous) - Academic & Evaluation - Academic Calendar for
MBA IV Semester (Regular) for the academic year 2018-19 - Reg.

The approved Academic Calendar for **MBA IV Semester (Regular)** for the academic year 2018-19 is given below:

ACADEMIC CALENDAR
MBA IV Semester (Regular) for Admitted Batch 2017-18

SNO	EVENT	PERIOD	DURATION
1.	Commencement of IV Semester Class Work	27.12.2018	
2.	1 ST Spell of Instructions for covering First Two and a half Units (Project Work Commences)	27.12.2018 - 20.02.2019	8 Weeks
3.	Stage-I Review Project Work	21.02.2019 - 23.02.2019	3 Days
4.	I Mid Examinations Timings: 10.00 AM To 12.00 Noon	25.02.2019 - 28.02.2019	4 Days
5.	2 nd Spell of Instructions for covering Remaining Two and a half Units	01.03.2019 - 25.04.2019	8 Weeks
6.	Stage-II Review Project Work	26.04.2019 - 29.04.2019	3 Days
7.	II Mid Examinations Timings: 10.00 AM To 12.00 Noon	30.04.2019 - 03.05.2019	4 Days
8.	Preparation Holidays	04.05.2019 - 11.05.2019	1 Week
9.	IV Semester End Examinations(Regular) & Supplementary Examinations	13.05.2019 - 25.05.2019	2 Weeks
10.	Project Viva	27.05.2019 - 01.06.2019	1 Week

CE
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTU)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510.
The MBA Convener

Administrative Officer
Placement Officer

Prof. CH. GVN Prasad with a request to place in the College Website Portal.

DEAN, ACADEMIC AFFAIRS & EVALUATION
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510.

PRINCIPAL
Sri Indu College of Engineering & Technology
(An Autonomous Institution under JNTUH)
Sheriguda (V), Ibrahimpatnam, R.R.Dist-501510.



Sri Indu

College of Engineering & Technology

UGC Autonomous Institution

Recognized under 2(f) & 12(B) of UGC Act 1956,

NAAC, Approved by AICTE &

Permanently Affiliated to JNTUH



NAAC

NATIONAL ASSESSMENT AND
ACCREDITATION COUNCIL



HANDOUT

Final Year EEE- Semester II

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2020-21

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

HANDOUT- INDEX

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2	Institution Academic Calendar
3	Department Academic Calendar
4	Subject wise
i)	Syllabus Copy
ii)	Lesson Plan
iii)	Question Bank
iv)	End Examination Questions (Previous 3 Academic Year)
v)	Mid-1 & Mid-2 Questions (Previous 3 Academic Year)



800b
PRINCIPAL
Sri Indu College of Engineering and Technology
(M): SHERGUDA-501 510,
Brahmapatnem(M), R.R.Dist.



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

B. TECH –ELECTRICAL & ELECTRONICS ENGINEERING

INSTITUTION VISION

To be a premier Institution in Engineering & Technology and Management with competency, values and social consciousness.

INSTITUTION MISSION

- IM₁** Provide high quality academic programs, training activities and research facilities.
- IM₂** Promote Continuous Industry-Institute interaction for employability, Entrepreneurship, leadership and research aptitude among stakeholders.
- IM₃** Contribute to the economical and technological development of the region, state and nation.

DEPARTMENT VISION

To be a centre of excellence in Electrical and Electronics Engineering Education to produce professionals for ever-growing needs of society.

DEPARTMENT MISSION

The Department has following Missions:

- DM₁** To promote and facilitate student- centric learning.
- DM₂** To involve in activities that enable overall development of stakeholders.
- DM₃** To provide holistic environment with state-of-art facilities for students to develop solutions for various social needs.
- DM₄** Organize trainings in Mat lab and Embedded Systems with Industry interaction.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: Graduates with a basic foundation in various disciplines and in emerging areas of Electrical Engineering for higher studies, research, to understand, analyze and solve engineering problems, employability and meet the realistic constraints.

PEO 2: To induce strong foundation in mathematical and basic concepts, which enable them to participate in research, in the field of Electrical Engineering.

PEO 3: To be able to become the part of application development and problem solving by learning the Electrical methods, of the industry and related domains.

PEO 4: To improve the Electrical knowledge, organizing skills which build the professional qualities, there by understanding the social responsibilities and ethical attitude

PROGRAM OUTCOMES (POs) & PROGRAM SPECIFIC OUTCOMES (PSOs)

PO	Description
PO 1	Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
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 the public health and safety, and the cultural, societal, and environmental considerations.
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.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
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.
PO 7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with 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.
PO 11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological Change
Program Specific Outcomes	
PSO 1	Basic Electrical and Electronics knowledge: Gains knowledge on basic electrical circuits with which students can apply to real world electrical and electronics problems and applications
PSO 2	Design Methods: Design, Design, verify and authenticate electrical functional elements for different applications, with skills to interpret and communicate results
PSO 3	Experimentation & Engineering: Engineering and management concepts are used to analyze specifications and prototype electrical as well as electronic experiments/projects either independently or in teams.

COs MAPPING WITH Pos & PSOs

FUNDAMENTALS OF HVDC & FACTS DEVICES (C421)

At the End of the course, student will be able to

CO No	DESCRIPTION
C421.1	Understand about Power flow studies and Power transmission systems
C421.2	Analyse about Power system operation
C421.3	Understand and Analyse about Power system protection & control
C421.4	Know about Power system stability and control
C421.5	Understand about Reactive power and harmonic control

Course Articulation Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
C421.1	3	3	1	1	1	-	-	-	-	-	-	-	3	3	3
C421.2	3	3	2	1	1	-	-	-	-	-	-	-	3	3	3
C421.3	3	3	2	1	-	-	-	-	-	-	-	-	3	3	3
C421.4	3	3	2	2	-	-	-	-	-	-	-	-	3	3	3
C421.5	3	3	-	3	2	-	-	-	-	-	-	-	3	3	3
C421	3	3	1.75	1.6	1.3	-	-	-	-	-	-	-	3	3	3

COs MAPPING WITH Pos & PSOs

EHV AC Transmission (C423)

At the End of the course, student will be able to

CO No	DESCRIPTION
C423.1	Students learn about trends in EHV AC Transmissions and calculate line inductance and capacitance of bundle conductor.
C423.2	Students can calculate voltage gradient of bundled conductors
C423.3	Students will understand the effects of corona and audible noise and understand the effect of Radio Interference.
C423.4	Students can calculate electrostatic field of EHV AC lines and analyze travelling waves
C423.5	Students can analyze compensated devices for voltage control.

Course Articulation Matrix

Course Outcome s	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C423.1	1	-	2	-	-	-	-	-	-	-	-	2	1	2	1
C423.2	1	2	2	-	-	-	-	-	-	-	-	-	1	1	-
C423.3	1	1	2	-	-	-	-	-	-	-	-	2	1	2	-
C423.4	1	1	2	-	-	-	-	-	-	-	-	-	1	2	-
C423.5	1	1	2		-	-	-	-	-	-	2	2	1	2	-
C214	1	1.25	2	-	-	-	-	-	-	-	2	2	1	1.8	1

COs MAPPING WITH Pos & PSOs

NEURAL NETWORKS AND FUZZY LOGIC (C422)

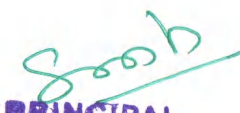
At the End of the course, student will be able to

CO No	DESCRIPTION
C422.1	Develop the model of Artificial Neural Networks
C422.2	Demonstrate the ability to create model of the Single and Multiple feed forward networks with supervised, unsupervised and reinforcement learning.
C422.3	Demonstrate the paradigms of Associative Memories patterns with Hebbian learning
C422.4	Analyse the stability of Bidirectional Associative memories with algorithms.
C422.5	Design of Classical, fuzzy sets and fuzzy logic system components.

Course Articulation Matrix

Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
C422.1	1	2	3	1	-	-	-	-	-	-	-	-	1	2	1
C422.2	2	3	1	-	-	-	-	-	2	-	2	-	1	1	-
C422.3	1	3	-	2	-	-	-	-	-	-	-	2	1	2	-
C422.4	1	3	2	-	-	-	-	-	2	-	2	2	1	2	-
C422.5	2	3	-	-	-	-	-	-	-	-	-	-	1	2	-
C422	1.4	2.8	2	1.5	-	-	-	2	2	2	2	2	1	1.8	1




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Lr.No. SICET/AUTO/DAE/Revised Academic Calendar/264/2021

Dt: 22.03.2021

Dr.G.SURESH,
Principal,

To,
All the HODs

Sir,

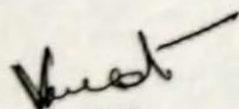
Sub: SICET (Autonomous) - Academic & Evaluation - Revised Academic Calendar
for **B.Tech 4th Year II Sem** - For the academic year 2020-21 - Reg.

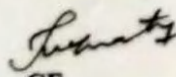
The approved Revised Academic Calendar for **B.Tech IV Year - II Sem** for
the academic year 2020-21 is given below:

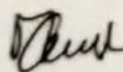
• **B.Tech 4th Year for (2016 - 17 Batch) BR - 16 Regulation**
Revised Academic Calendar for B.Tech - 4th Year II Sem students

II Semester

Commencement of class work	22.03.2021 (Monday)	
I Spell of Instructions including First Mid Term Examinations.	22.03.2021	01.05.2021 - 6 Weeks
I Mid Examinations	30.04.2021	01.05.2021 - 2 Days
II Spell of Instructions including Second Mid Term Examinations and project Viva-Voce	03.05.2021	12.06.2021 - 6 Weeks
II Mid Examinations	09.06.2021	10.06.2021 - 2 Days
End Semester Examinations for IV B.Tech	14.06.2021	19.06.2021 - 1 Week


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FUNDAMENTALS OF HVDC & FACTS DEVICES

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

B.Tech. - IV Year – II Semester

L	T/P/D	C
3	-/1/-	3

(R16EEE1125) FUNDAMENTALS OF HVDC AND FACTS DEVICES

Course Objectives:

The course objectives are:

The subject deals with the importance of HVDC transmission,

To Analyze HVDC converters, Harmonics and Filters, Reactive power control and Power factor improvements of the system.

It also deals with basic FACTS concepts, static shunt and series compensation and combined Compensation techniques

UNIT – I

Introduction: Comparison of AC and DC transmission systems, application of DC transmission, types of DC links, typical layout of a HVDC converter station. HVDC converters, pulse number, analysis of Gratez circuit with and without overlap, converter bridge characteristics, equivalent circuits or rectifier and inverter configurations of twelve pulse converters.

UNIT – II

Converter & HVDC System Control: Principles of DC Link Control –Converters Control Characteristics – system control hierarchy, firing angle control, current and extinction angle control, starting and stopping of DC link.

UNIT – III

Harmonics, Filters and Reactive Power Control : Introduction, generation of harmonics, AC and DC filters, Reactive Power Requirements in steady state, sources of reactive power, static VAR systems. **Power Flow Analysis in AC/DC Systems:** Modeling of DC/AC converters, Controller Equations- Solutions of AC/DC load flow –Simultaneous method Sequential method.

UNIT – IV

Introduction to FACTS : Flow of power in AC parallel paths and meshed systems, basic types of FACTS controllers, brief description and definitions of FACTS controllers.

Static Shunt Compensators: Objectives of shunt compensation, methods of controllable VAR generation, static VAR compensators, SVC and STATCOM, comparison between SVC and STATCOM.

UNIT – V

Static Series Compensators : Objectives of series compensation, variable impedance type-thyristor switched series capacitors (TCSC), and switching converter type series compensators, static series synchronous compensator (SSSC)-power angle characteristics-basic operating control schemes.

Combined Compensators: Introduction, unified power flow controller (UPFC), basic operating principle, independent real and reactive power flow controller, control structure.



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LESSON PLAN

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Department of Electrical and Electronics Engineering

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Academic Year: 2020-21


Year/Sem./Section

IV/II/A&B

Faculty Name & Designation

Dr N Malleswara Rao A./J.Rakesh Sharan ,EEE

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Proposed Date of Handling	CO/RBT
			From	To				
I	UNIT I INTRODUCTION TO HVDC					14		
1.1	Comparison Of AC & DC Transmission	T1	17	27	Black board	02	22/03/2021	CO1,L2
1.2	,Types Of Dc Links	T1	12	12	Black board	01	23/03/2021	CO1,L2
1.3	Applications Of DC Transmission System	T1	34	34	Black board	01	24/03/2021	CO1,L2
1.4	Typical Layout Of A HVDC Converter Station	T1	13	16	Black board	02	30/03/2021	CO1,L2
1.5	HVDC Converters, Pulse Number	T1	40	40	Black board	02	31/03/2021	CO1,L2
1.6	Analysis Of Gratez Circuit With And Without Overlap	T1	62	63	Black board	02	05/04/2021	CO1,L3
1.7	Converter Bridge Circuits	T1	64	65	Black board	01	06/04/2021	CO1,L3
1.8	Equivalent circuits or rectifier and inverter configurations of twelve pulse converters.	T1	68	87	Black board	03	07/04/2021	CO1,L4
	Review	Signature of the HOD/Coordinator						
Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Proposed Date of Handling	CO/RBT
II	UNIT II Converter & HVDC System Control					12		
2.1	Introduction Converter & HVDC System Control	T1	129	129	Black board	02	12/04/2021	CO3,L2
2.2	Principles of DC Link Control	T1	130	131	Presentation	02	12/04/2021	CO3,L2
2.3	Converters Control Characteristics	T1	135	140	Presentation	02	19/04/2021	CO3,L3
2.4	System control hierarchy, firing angle control,	T1	142	144	Black board	02	19/04/2021	CO3,L2
2.5	Current and extinction angle control	T1	151	153	Black board	02	20/04/2021	CO3,L2
2.6	Starting and stopping of DC link.	T1	154	156	Black board	02	20/04/2021	CO3,L3
	Review	Signature of the HOD/Coordinator						
III	UNIT- III Harmonics, Filters and Reactive Power Control					14		
3.1	Introduction Harmonics, Filters and Reactive Power Control	R2	200	209	Presentation	02	26/04/2021	CO-4,L6
3.2	Reactive Power Requirements in steady state	R2	130	135	Presentation	02	26/04/2021	CO-1,L2

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Academic Year: 2020-21			Year/Sem./Section		IV/II/A&B				
Faculty Name & Designation			Dr N Malleswara Rao A,/J.Rakesh Sharan ,EEE						
Unit/ Item No.	Topic (s)	Book Reference	Page (s) From To		Teaching Methodology	Proposed No. of Periods	Proposed Date of Handling	CO/RBT	
3.3	AC and DC filters, and sources of reactive power	R2	136	137	Black board	02	27/04/2021	CO-4,L2	
3.4	Static VAR systems	R2	138	141	Black board	02	27/04/2021	CO-4,L2	
3.5	Power Flow Analysis in AC/DC Systems	R2	5.52	5.73	Black board	02	28/04/2021	CO-4,L3	
3.6	Modelling of DC/AC converters	R2	172	180	Black board	01	28/04/2021	CO-4,L2	
3.7	Controller Equations Solutions of AC/DC load flow –Simultaneous method	R2	191	192	Black board	02	03/05/.2021	CO-1,L1	
3.8	Sequential method.	R2	194	196	Black board	01	03/05/.2021	CO-1,L2	
	Review	Signature of the HOD/Coordinator							
IV	UNIT-IV Introduction to FACTS					15			
4.1	Introduction to FACTS	T2	1	2	Presentation	01	04/05/.2021	CO-1,L1	
4.2	Flow of power in AC parallel paths and meshed systems	T2	4	5	Presentation	02	04/05/.2021	CO-5,L2	
4.3	Basic types of FACTS controllers	T2	13	14	Black board	01	05/05/.2021	CO-4,L4	
4.4	Brief description and definitions of FACTS controller	T2	16	20	Black board	02	05/05/.2021	CO-4,L6	
4.5	Static Shunt Compensators, Objectives of shunt compensation	T2	135	136	Presentation	02	10/05/.2021	CO-4,L2	
4.6	Methods of controllable VAR generation	T2	144	146	Presentation	01	10/05/.2021	CO-5,L2	
4.7	Static VAR compensators	T2	179		Black board	01	11/04/2021	CO-4,L3	
4.8	SVC and STATCOM,	T2	179	188	Black board	01	11/05/.2021	CO-4,L2	
4.9	Comparison between SVC and STATCOM.	T2	197	201	Black board	02	12/05/2021	CO-4,L3	
	Review	Signature of the HOD/Coordinator							
V	UNIT-V STATIC SERIES COMPENSATORS,COMBINED COMPENSATORS					10			
5.1	Introduction Objectives of series compensation	T2	209	211	Presentation	01	17/05/2021	CO-5,L1	
5.2	Variable impedance type-thyristor switched series capacitors (TCSC),	T2	216	218	Presentation	02	18/05/2021	CO-5,L2	
5.3	Switching converter type series compensators	T2	243	243	Black board	01	19/05/2021	CO-5,L6	
5.4	Static series synchronous compensator (SSSC)-	T2	244	245	Black board	01	24/05/2021	CO-5,L3	
5.5	Power angle characteristics-basic	T2	627	628	Black board	01	25/05/2021	CO-5,L3	



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Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Proposed Date of Handling	CO/RBT
			From	To				
	operating control schemes.							
5.6	Unified power flow controller (UPFC)	T2	299	299	Presentation	01	26/05/2021	CO-5,L2
5.7	Basic operating principle	T2	300	301	Black board	01	27/05/2021	CO-5,L2
5.8	Independent real and reactive power flow controller, control structure.	T2	305	306	Black board	02	31/05/2021	CO-5,L3
	Review	Signature of the HOD/Coordinator						



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	Academic Year: 2020-21	Year/Sem./Section	IV/II/A&B
	Faculty Name & Designation	Dr N Malleswara Rao A./J.Rakesh Sharan ,EEE	

LIST OF TEXT BOOKS AND REFERENCES

Text Books:

- T1. HVDC Transmission, S. Kamakshaiah, V. Kamaraju, The Mc – Graw Hill Companies.
- T2. Understanding FACTS, Concepts and Technology of Flexible AC Transmission Systems, Narain. G. Hingorani, Laszlo Gyugyi, IEEE Press, Wiley India.

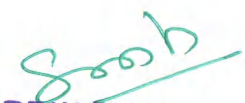
Reference Books:

- R1. HVDC and Facts Controllers Applications of Static Converters in Power Systems, Vijay K. Sood, Kluwer Academic Publishers.
- R2. HVDC Power Transmission Systems: Technology and system Interactions, K.R.Padiyar, New Age International (P) Limited.
- R3. Thyristor – Based Conrollers for Electrical Transmission Systems, R. Mohan Mathur, Rajiv K. Varma.Wiley India
- R4. FACTS Modeling and Simulation in Power Networks, Enrique Acha, Wiley India Distributed by\ BSP Books Pvt. Ltd

Web links

- W1 <http://nptel.ac.in/courses/108104013/1-37>
- W2 <https://nptel.ac.in/courses/108/107/108107114/>
- W3 <https://www.sciencedirect.com/topics/engineering/hvdc-power-transmission>
- W4 <https://edisontechcenter.org/HVDC.html>




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CONTENT BEYOND THE SYLLABUS

S.No	Topics	Proposed Actions	Date	Resource Person/Mode	POs	PSOs
1.	Thyristor – Based Controllers for Electrical Transmission Systems	PPT & Videos		Self/Projector	PO-1,2,3	PSO-1,2
2.	FACTS Modelling and Simulation in Power Networks	PPT & Videos		Self/Projector	PO-1,2,3,4	PSO-1,2
3.	Study of MTDC	PPT & Videos		Self/Projector	PO-1,2,3	PSO-1,2
4.	Power Modulation in MTDC	PPT & Videos		Self/Projector	PO-1,2,3,4	PSO-1,2

ASSIGNMENT

S.No.	Assignment Questions	Course Outcome	Books To be Referred	Date Of Announcement	Date Of Submission
1.	Modern trends in HVDC Technology	CO1 L2- Understanding	T1	05.04.2021	12.04.2021
2.	HVDC Converter	CO3 L3-Applying	T1	12.04.2021	19.05.2021
3.	Power flow analysis	CO3 L1- Remembering	R4	19.04.2021	26.04.2021
4.	FACTS Controllers	CO1 L2- Understanding	T2	03.05.2021	10.05.2021
5.	SVC,STATCOM,SSSC and UPFC	CO3 L3-Applying	T2	10.05.2021	17.05.2021

SELF STUDY TOPICS

S.No.	Topics	Books & Journals	Course Outcomes
1	HVDC Converter Analysis	T1, w4, w1	CO-1,L2
2	UPFC	T2, w2	CO-5,L6



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QUESTION BANK

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QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)

(1. Remembering 2. Understanding 3. Applying 4. Analyzing 5. Evaluating 6. Creating)

UNIT-1 Introduction: Comparison of AC and DC transmission systems

1 MARKS QUESTIONS

		BT Level	Course Outcome
1.	List any two advantages of graetz circuits over six pulse converter?	1	CO1
2.	What do you mean by commutation delay?	1	CO1
3.	Evaluate the expression for rms value of fundamental current?	1	CO1
4..	Develop a Short note on converter when operated as rectifier?	1	CO1
5.	Develop a Short note on converter when operated as inverter?	2	CO1
6.	What are the various components in HVDC converter station?	2	CO1
7.	List any two limitation of AC inter connection?)	3	CO1
8	What is the advantage of homo-polar link?	4	CO1
9	Distinguish any two merits of inter connecting HVDC system?	4	CO1
10	Distinguish the comparison between AC and DC Transmission system?	5	CO1

10 MARKS QUESTIONS

1.	List the detail about different types of HVDC links? -	2	CO1
2.	Discuss technical notes on the following	2	CO1
3.	Explain the break even distance of dc transmission system?	2	CO1
4.	Illustrate the schematic diagram of a typical HVDC converters station and explain the functions of various components available	2	CO1
5.	What are the different applications of HVDC transmission system? Explain them in details.	2	CO1
6.	Develop the Schematic circuit diagram of a 6-pulse Graetz's circuit and explain its principle of operation?	2	CO1
7.	What are the advantages of Graetz's circuits over six-pulse converter?-	4	CO1
8	Choose and obtain the relation between firing angle and power factor angle in a three phase bridge rectifier?	5	CO1
9	Show that the rating of the valve used in Graetz's circuits is $2.094 P_d$, where P_d is the D.C. power transmitted?	5	CO1
10	Design the waveforms for voltage and current in six pulse Graerz's circuit with $\alpha=30^\circ$, $\mu=15^\circ$?	5	CO1



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Faculty Name & Designation

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Unit-II : Converter & HVDC System Control

1 MARKS QUESTIONS

1.	What is the function of HVDC substation control system?	1	CO2
2.	Determine the expression for pulse period control?	1	CO2
3.	What is the function of pole control system?	1	CO2
4.	List any two disadvantages of individual phase control?	1	CO2
5.	What is the function of master control system?	1	CO2
6.	Choose any two advantages of individual phase control?	1	CO2
7.	What are the ways to obtain the equidistant phase control?	3	CO2
8.	Define the telecommunication equipment?	4	CO2
9.	What is the function of converter unit control system?	4	CO2
10.	Define the voltage dependent current limiter?	6	CO2

10 MARKS QUESTIONS

1	Explain in detail the converter control characteristics of HVDC systems? -	2	CO2
2.	Explain the principle of control of a two terminal dc link? -	2	CO2
3.	Explain a block diagram of the hierarchical levels of control of HVDC transmission system?	2	CO2
4.	Elaborate short note on combined characteristics of rectifier and inverter?	2	CO2
5.	Make a short notes on the following – Constant alpha control	2	CO2
6.	Make a short notes on the following – Inverse cosine control	2	CO2
7.	Explain the principle of operation of firing angle control scheme? -	3	CO2
8.	Develop short notes on the constant minimum ignition angle control?	4	CO3
9.	Explain with block diagram the current controller used in HVDC system?	4	CO3
10.	Discuss in detail the effect of source inductance on HVDC systems?	6	CO3



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QUESTION BANK

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IV/II/A&B

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Dr N Malleswara Rao A./J.Rakesh Sharan ,EEE

Unit – III : Harmonics, Filters and Reactive Power Control

1 MARKS QUESTIONS

1.	What is mean by reactive power control?	1	CO3
2.	Design the HVDC transmission system? -	1	CO3
3.	Design the single line diagram of HVDC system?	1	CO3
4.	What are the different types of filter in HVDC system? -	2	CO3
5.	Choose any two applications of synchronous condensers? -	2	CO3
6.	What are the various types of static compensators?	2	CO4
7.	Define another name for sequential method? -	3	CO4
8.	List any two advantages of unified solution method?	3	CO4
9.	Select any two advantages of alternating solution method?	4	CO4
10.	Explain the controller expression for rectifier?	5	CO4

10 MARK QUESTIONS

1.	What is mean by reactive power control? Explain in detail how it is achieved? -	1	CO3
2.	Explain the conventional control strategy employed in HVDC system? -	2	CO3
3.	Develop a note on alternate control strategy?	2	CO3
4.	Evaluate a note on the synchronous condensers source of reactive power? –	2	CO3
5.	Discuss a note on the static VAR system source of reactive power?	2	CO4
6.	What is the per unit system for dc quantities?	2	CO4
7.	Simplify and explain the solution of ac-dc load flow problem using simultaneous method?	3	CO4
8.	Design the flow chart for ac-dc load flows and explain two cases in it?	4	CO4

9.	Develop the mathematical model of a dc converter?	3	CO4
10.	Compare simultaneous and sequential methods of power flow analysis?	5	CO4

Unit-IV : Introduction to FACTS & Static Shunt Compensators

1 MARKS QUESTIONS

1.	Explain the power flow in AC parallel paths? -)	1	CO5
2.	Discuss the difference types of FACTS controller?	1	CO5
3.	Explain the power flow in AC Meshed systems? -	1	CO5
4.	Explain the brief description of FACTS controllers?	1	CO5
5.	Explain the definitions of FACTS controllers? -	1	CO5
6.	Identify the objectives of shunt compensation? –	2	CO5
7.	Discuss the methods of controllable VAR generation? –	3	CO5
8.	Explain in brief about static VAR compensator? -	3	CO5
9.	Comparison between SVC and STATCOM?	4	CO5
10.	Discuss in brief about STATCOM? –	5	CO5

10 MARK QUESTIONS

1.	Define any of the variable impedance type static VAR generators?	2	CO5
2.	Explain the operating features of STATCOM? -	2	CO5
3.	Explain the concept of end of line voltage support to prevent voltage stability in shunt compensation.	2	CO5
4.	Elaborate and obtain transfer function of static VAR compensator and mention its compensation effect on stability –	2	CO5
5.	Explain necessary modifications in static VAR generation characteristics due to regulation slope?	2	CO5
6.	Distinguish between STATCOM and SVC in the following (i) V-I characteristics (ii) transient stability –	2	CO5
7.	Discuss the improvement of voltage stability using shunt compensation? –	3	CO5
8.	Discuss the operation of STATCOM with a neat diagram and characteristics? –	3	CO5
9.	Evaluate short note on transient stability enhancement using STATCOM and SVC?	4	CO5
10.	Explain the basic types of FACTS controllers? –	6	CO5

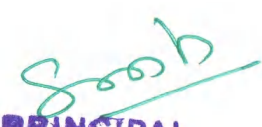
Unit-V: Static Series Compensators

1 MARKS QUESTIONS

1.	Explain the any three applications of UPFC? -	1	CO6
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2.	Discuss the basic principle difference between series and shunt compensation? –	2	CO6
3.	What are the objectives of series compensation?	1	CO6
4.	What is a stand-alone series and shunt compensation?	1	CO6
5.	Label any three functional requirements of series compensation?	1	CO6
6.	What are the characteristics differences between TSSC and TCSC? -)	1	CO6
7.	What is meant by switched transients in thyristor switched capacitor?	3	CO6
8.	Explain the Static series compensator?	4	CO6
9.	Compare the difference between TCS and SSSC?	4	CO6
10.	What are the advantages and disadvantages of UPFC?	5	CO6
10 MARK QUESTIONS			
1.	Explain the implementation of the UPFC by back-to-back voltage sourced converters? -	2	CO6
2.	Discuss the variation of real and reactive powers in UPFC schemes?	2	CO6
3.	Build the configuration and characteristics of basic thyristor-switched series capacitor?	2	CO6
4.	Explain the power oscillation and sub synchronous oscillation damping in series capacitive compensation?	2	CO6
5.	Analyze the dependence of real and reactive power flow control in UPFC? –	2	CO6
6.	Explain the impedance versus delay angle characteristics of TCSC?	2	CO6
7.	Discuss improvement of transient stability using series compensation on transmission systems?	4	CO6
8.	Discuss the configuration and operation of TCSC?	4	CO6
9.	Analyze the basic operating principles and concepts of UPFC?	4	CO6
10.	Explain the basic two-converter Interline Power Flow Controller scheme? -	5	CO6




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SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

Recognized under 2(f) and 12(B) of UGC Act 1956

IV B.Tech - II Semester –End Examinations (Regular/Suppl.) April - 2019**Fundamentals of HVDC and FACTS Devices**

(Electrical & Electronics Engineering)

Duration: 3 Hrs**Dt: 25.04.2019****Max Marks: 70M****Section – A****Answer All the following questions****Marks: 5Qx4M = 20M**

1. State the advantages of HVDC transmission over EHVAC transmission for bulk power transmission.
2. What are the advantages and disadvantages of homopolar HVDC links over other types of links?
3. What are the sources of reactive power? Why is it required in steady state?
4. What are the objectives of shunt compensation?
5. What is reactive power flow controller? Explain in brief.

Section – B**Answer any FIVE questions choosing at least one from each Unit****Marks: 5Qx10M = 50M****UNIT – I**

6. Discuss the different factors that favour DC transmission.

(OR)

7. A 3-phase fully controlled 6-pulse converter has a source reactance of $0.3\Omega/\text{ph}$. and operating from 400 V 3-phase 50Hz supply. The converter is operating as rectifier with firing angle 60° . Determine the load voltage and overlap angle when load current is 100A. Determine μ and load voltage if α is reduced to 30° and load changed to 30 A.

UNIT - II

8. Explain the relative merits and demerits of constant current and constant voltage operation of an HVDC link.

(OR)

9. Explain the procedure of starting and stopping of D.C link.

UNIT – III

10. Identify the various sources for generation of harmonics in HVDC systems and mention various adverse effects caused due to the presence of harmonics.

(OR)

11. Explain the working of band-pass and high-pass filters used in HVDC systems. Explain the term detuning and state its importance in the design of filters for HVDC systems.

UNIT - IV

12. Obtain the comparison between SVC and STATCOM.

(OR)

13. Discuss the power flow in A.C parallel paths. Differentiate this with meshed systems.

UNIT-V

14. Explain the basic principle and power angle characteristics of SSSC.

(OR)

15. Explain the basic operating principle of the UPFC with a neat schematic diagram.

BR-14

D4

Subject Code: R14EEE1125

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IV B.Tech - II Semester –End Examinations (Regular) April - 2018

Fundamentals of HVDC and FACTS Devices

(Electrical & Electronics Engineering)

Duration: 3 Hrs

Max Marks: 70M

Section – A

Answer All the following questions

Marks: 5Qx4M = 20M

1. What are the applications of FACTS Controllers?
2. What are the types of DC link?
3. What are the different methods of controlling the Reactive power?
4. What are the characteristics differences between TSSC and TCSC?
5. Mention the advantages of shunt compensation.

Section – B

Answer any FIVE questions choosing at least one from each Unit

Marks: 5Qx10M = 50M

UNIT - I

6. What are the principle advantages of HVDC Transmission over EHVAC Systems?
(OR)
7. Derive the expression for input power, output power and power factor of 12 pulse bridge converter with delay angle. Assume there is no overlap.

UNIT – II

8. Discuss in detail about the converter control characteristics of hvdc system.
(OR)
9. Explain in detail about current and extinction angle control.

UNIT – III

10. Discuss the various sources of reactive power for HVDC converters.
(OR)
11. Explain the power flow algorithm for AC-DC system.

UNIT - IV

12. Briefly explain the different FACTS devices.
(OR)
13. Mention the difference methods of controllable VAR generation.

UNIT-V

14. Explain the objectives of series compensation.
(OR)
15. Explain the implementation of the UPFC by back-to-back voltage sourced converters.

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D4

IV B.Tech - II Semester - II Mid Term Examinations
(R14EEE1125) Fundamentals of HVDC and FACTS Devices
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 90Mins

15 .04.2019 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define another name for sequential method.
2. Select any two advantages of alternating solution method.
3. Explain the power flow in AC parallel paths.
4. Comparison between SVC and STATCOM.
5. Compare the difference between TCS and SSSC.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Simplify and explain the solution of ac-dc load flow problem using simultaneous method.
7. Develop the mathematical model of a dc converter.
8. Discuss the improvement of voltage stability using shunt compensation.
9. Discuss the operation of STATCOM with a neat diagram and characteristics.
10. Analyze the basic operating principles and concepts of UPFC.
11. Explain the basic two-converter Interline Power Flow Controller scheme.



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D4

IV B.Tech - II Semester - II Mid Term Examinations
(R14EEE1125) Fundamentals of HVDC and FACTS Devices
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 90Mins

09 .04.2018 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. What are the different types of filter in HVDC system?
2. Mention the difference types of FACTS controller
3. Explicate the power flow in AC parallel paths.
4. Explicate the any three applications of UPFC
- 5 Explicate the Static series compensator.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Write a note on the static VAR system source of reactive power
7. Compare simultaneous and sequential methods of power flow analysis
8. Obtain transfer function of static VAR compensator and mention its compensation effect
9. Write a comparison between STATCOM and SVC in the following i) V-I characteristics
10. Explicate the implementation of the UPFC by back-to-back voltage sourced converters.
11. Discuss improvement of transient stability using series compensation on transmission systems



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EXTRA HIGH VOLTAGE AC TRANSMISSION

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**(An Autonomous Institution under UGC, New Delhi)****B.Tech. - IV Year – II Semester****L T/P/D C****3 -1/- 3****(R16EEE1127) EHV AC TRANSMISSION****Course Objectives:**

The objectives of the course are:

- This course introduces the concepts of extra high voltage AC transmission
- It also emphasis on the behavior of the line parameters for extra high voltages, voltage gradients of the transmission line conductors gradients, the effect of corona, electrostatic filed calculations, travelling wave theory concept, voltage control when the line carries extra high voltages.

UNIT – I

Introduction : Necessity of EHV AC transmission – advantages and problems–power handling capacity and line losses- mechanical considerations – resistance of conductors – properties of bundled conductors – bundle spacing and bundle radius- Examples. **Line and ground reactive parameters:** Line inductance and capacitances – sequence inductances and capacitances – modes of propagation – ground return - Examples

UNIT – II

Voltage Gradients of Conductors: Electrostatics – field of sphere gap –field of line charges and properties – charge – potential relations for multi conductors – surface voltage gradient on conductors – distribution of voltage gradient on sub-conductors of bundle – Examples.

UNIT – III

Corona Effects: Power loss and audible noise (AN) – corona loss formulae – charge voltage diagram – generation, characteristics - limits and measurements of AN – relation between 1-phase and 3-phase AN levels – Examples. Radio interference (RI) - corona pulses generation, properties, limits – frequency spectrum – modes of propagation – excitation function – measurement of RI, RIV and excitation functions – Examples.

UNIT – IV

Electro Static Field: Electrostatic field: calculation of electrostatic field of EHV/AC lines – effect on humans, animals and plants – electrostatic induction in unenergized circuit of double-circuit line – electromagnetic interference Examples.

Traveling wave theory: Traveling wave expression and solution- source of excitation- terminal conditions- open circuited and short-circuited endreflection and refraction coefficients-Lumped parameters of distributed lines- generalized constants-No load voltage conditions and charging current.

UNIT – V

Voltage Control: Power circle diagram and its use – voltage control using synchronous condensers – cascade connection of shunt and series compensation – sub synchronous resonance in series capacitor – compensated lines – static VAR compensating system.



SRI INDU COLLEGE OF ENGG & TECH

LESSON PLAN

(Regulation :R16)

Department of Electrical and Electronics Engineering

Prepared on

Rev1:

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Sub. Code & Title R16EEE1127 & EHV AC TRANSMISSIONS

Academic Year: 2020-21

Year/Sem./Section

IV Year/II Sem/A


Faculty Name & Designation

T.VENU GOPAL & Assistant Professor

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
I	Introduction to EHV AC transmission					14		
1.1	Introduction to EHV AC transmission	T1	1	2	Black board	01	22/03/2021	CO1,L2
1.2	Advantages and problems	T1,w4	2	3	Black board	01	22/03/2021	CO1,L2
1.3	Power handling capacity and line losses	R2	11	12	Black board	01	23/03/2021	CO1,L2
1.5	Mechanical considerations	T1	17	18	Black board	01	23/03/2021	CO1,L2
1.6	resistance of conductors	R2	22	25	Black board	01	24/03/2021	CO1,L2
1.7	Properties of bundled conductors, bundle	R2	28	30	presentation	01	24/03/2021	CO1,L3
1.8	spacing and bundle radius	T1	36	38	Black board	01	30/03/2021	CO1,L3
1.9	Examples , Problems solving	T1	37	39	Presentation	01	30/03/2021	CO1,L4
1.10	Line inductance and capacitances	R2	30	50	Presentation	01	31/03/2021	CO1,L2
1.11	Concept of Reactance, Impedance, Susceptance and Admittance	W5	1	5	Presentation	01	31/03/2021	CO1,L2
1.12	Modes of propagation	T1	44	50	Presentation	02	6/4/2021	CO1,L2
1.13	Ground return –examples problems	T1	50	58	Black board	02	7/4/2021	CO1,L2
	Review	Signature of the HOD/Coordinator						
UNIT II	Voltage Gradients of Conductors					14		
2.1	Introduction of Electrostatics –field of sphere gap	R2	61	68	Demonstration	01	19/04/2021	CO2,L3
2.2	Field of line charges and properties	T1	68	72	Charts	02	20/04/2021	CO2,L2
2.3	Charge, potential relations for multiconductors	R2	72	75	Charts	02	26/04/2021	CO2,L3
2.4	Surface voltage gradient on conductors	T1	76	86	Demonstration	02	27/04/2021	CO2,L3
2.5	Distribution of voltage gradient on sub	T1,R2	89	92	Black board	02	28/04/2021	CO2,L3
2.6	conductor of bundle-examples	R2	102	105	Black board	02	3/05/2021	CO2,L2
2.7	Solving problems	R2	108	112	Demonstration	02	4/05/2021	CO2,L5
	Review							
UNIT- III								
III	Corona Effects					13		
3.1	Power loss and audible noise	T1	113	114	Presentation	02	5/05/2021	CO3,L2

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
3.2	Corona loss formulae	T1	114	118	Presentation	02	10/05/2021	CO3,L2
3.3	Charge voltage diagram	T1	118	122	Black board	01	11/05/2021	CO3,L3
3.4	Generation ,characteristics	T1	125	126	Black board	01	12/05/2021	CO3,L2
3.5	Limits and measurements of AN	T1	126	127	Black board	01	17/05/2021	CO3,L2
3.6	Relation between 1-phase and 3-phase AN levels	T1	134	135	Black board	02	18/05/2021	CO3,L3
3.7	Examples	T1	135	135	Black board	02	19/5/2021	CO3,L2
3.8	Solving problems	T1	136	137	Black board	02	24/5/2021	CO3,L5
	Review							
UNIT-IV								
IV	Electro static field					19		
4.1	calculation of electrostatic field of EHV/AC lines	T1	174	183	Presentation	01	25/5/2021	CO4,L3
4.2	effect on humans, animals and plants	T1	183	184	Presentation	01	25/5/2021	CO4,L2
4.3	electrostatic induction in unenergized circuit of double-circuit line	T1	186	188	Black board	01	26/5/2021	CO4,L3
4.4	electromagnetic interference Examples	T1	202	203	Black board	01	26/5/2021	CO4,L2
4.5	Introduction of Traveling wave theory	T1	206	207	Presentation	01	31/5/2021	CO4,L2
4.7	Traveling wave expression and solution	T1	209	215	Presentation	01	31/6/2021	CO4,L2
4.8	source of excitation , terminal conditions	T1	221	222	Black board	01	1/6/2021	CO4,L2
4.9	open circuited and short-circuited endreflection and refraction coefficients	T1	227	229	Black board	01	1/6/2021	CO4,L3
4.10	Lumped parameters of distributed lines	T1	230	231	Black board	01	2/6/2021	CO4,L2
4.11	generalized constants	T1	318	321	Black board	01	2/6/2021	CO4,L2
4.12	No load voltage conditions and charging current	T1	321	323	Black board	01	7/6/2021	CO4,L2
	Review	Signature of the HOD/Coordinator						
UNIT-V								
V	Voltage Control					10		
5.1	Power circle diagram and its use	T1	323	328	Presentation	01	7/6/2021	CO5,L4
5.2	voltage control using synchronous condensers	R2	328	330	Black board	01	8/6/2021	CO5,L2
5.3	cascade connection of shunt and series compensation	T1	330	336	Black board	01	8/6/2021	CO5,L2
5.4	sub synchronous resonance in series capacitor compensated lines	R2	337	345	Black board	01	9/6/2021	CO5,L2

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
5.5	static VAR compensating system.	T1	345	355	Presentation	01	9/6/2021	CO5,L2
	Review	Signature of the HOD/Coordinator						

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	Academic Year: 2020-21	Year/Sem./Section	IV Year/II Sem/A
	Faculty Name & Designation	T.VENU GOPAL & Assistant Professor	

LIST OF TEXT BOOKS AND REFERENCES

Text Books:

- T1. EHVAC Transmission Engineering by R.D.Begamudre, New Age International (p) Ltd .
 T2. HVAC and DC Transmission by S. Rao

Reference Books:

- R1. EHV AC/DC transmission by Shobhit Gupta/ Deepak Gupta.
 R2. EHVAC Transmission Engineering by R.D.Begamudre, New Academic Science
 R3. Edison,"EHV Transmission line"- Electric Institution.

Web links

- w-1. https://www.academia.edu/6697158/HVDC_and_EHV_AC
 w-2. <https://xdocs.pl/doc/corona-effects-on-ehv-ac-transmission-lines-qoedvp5qzkn6>
 w-3. https://www.slideshare.net/khemraj298/extra-high-voltagebook?from_action=save
 W-4 <http://vikramuniv.ac.in>
 w-5 <https://www.electrical4u.com/admittance/>



SRI INDU COLLEGE OF ENGG & TECH
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Faculty Name & Designation

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CONTENT BEYOND THE SYLLABUS


S.No	Topics	Proposed Actions	Date	Resource Person/Mode	POs	PSOs
1	LIGHTENING AND LIGHTENING PROTECTION	CLASS ROOM(1 PERIOD)	19/4/2021	T VENU GOPAL	PO3,PO6	PSO1,PSO2

ASSIGNMENT

S.No.	Assignment Questions	Course Outcome	Books To be Referred	Date Of Announcement	Date Of Submission
1	Explain about the inductance transformation to sequence quantities?	CO1	T1	22-4-2021	28-4-2021
2	Formulate the line capacitance calculation of an EHVAC transmission system?	CO1	T1	22-4-2021	28-4-2021
3	Evaluate the expression for potential gradient at the surface of a conductor of 1-phase transmission line?	CO2	R2	3-5-2021	8-5-2021
4	Determine the maximum charge conduction on a 3-phase EHVAC line?	CO2	R2	3-5-2021	8-5-2021
5	With the help of a radio noise meter Write the procedure of measuring radio influence voltage (RIV)?	CO3	T1	24-5-2021	28-5-2021

SELF STUDY TOPICS

S.No.	Topics	Books & Journals	Course Outcomes
1	SYNCHRONOUS CONDENSOR WITH PHASOR DIAGRAM	International Journal of Science and Engineering Applications https://ijsea.com/archive/volume3/issue3/IJSEA03031002.pdf	CO5,L2
2	BOUNDLE CONDUCTORS	Power System Engineering by M.L.Soni	CO3,L2

	SRI INDU COLLEGE OF ENGG & TECH			Prepared on Rev1: Page: 9 of 40
	QUESTION BANK			
	(Regulation :R16)			
	Department of Electrical and Electronics Engineering			
Sub. Code & Title	R16EEE1127 & EXTRA HIGH VOLTAGE AC TRANSMISSIONS			
Academic Year: 2020-21	Year/Sem./Section	IV Year/II Sem		
Faculty Name & Designation	T.VENU GOPAL Assistant Professor			

QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)

(1. Remembering 2. Understanding 3. Applying 4. Analyzing 5 Evaluating 6. Creating)

UNIT-I

S.NO	SECTION-I		
	1 MARKS QUESTIONS	BT Level	Course Outcome
1.	Discuss the necessity of EHVAC Transmission over other transmission (April – 2019)	L2	CO1
2.	What the Disadvantages of the EHV transmission system.	L1	CO1
3.	List out the factors which govern the capacitance of transmission line in length of line.	L1	CO1
4.	Listout the factors which govern the capacitance of transmission line in presence of earth.	L1	CO1
5.	Listout the factors which govern the capacitance of transmission line in distance between conductors.	L1	CO1
6.	Explain the following mechanical considerations in line performances of Aeolion vibration.	L2	CO1
7.	Explainthe following mechanical considerations in line performances of Wake -induced oscillation.	L2	CO1
8.	Calculate the GMR of the bundle conductor having 8 sub conductors in the bundle, 0.6 m bundle radius and sub conductor diameter is 4.6 cm. (April – 2018)	L5	CO1
9.	Illustrateabout Bundled conductors and Hollow conductors.	L2	CO1
10	Discuss why EHV AC Lines are necessary to transmit large blocks of power over long distances (April – 2017)	L2	CO1
S.NO	SECTION-II		
	10 MARKS QUESTIONS	BT Level	Course Outcome
1.	What are bundled conductors? Discuss the Advantages of bundled conductors, when used for overhead lines.	L1	CO1
2.	Why EHVAC lines are necessary to transmit large blocks of power over long distance?	L1	CO1

3.	Explain difference between the temperature rise and current carrying capacity of EHVAC line.	L2	CO1
4.	Explain in detail capacitances and inductances of ground return and derive necessary expressions.(APRIL 2017)	L3	CO1
5.	Write down the procedure for diagonalization of Inductance matrix $L = \begin{bmatrix} L_{S1} & L_{M12} & L_{M13} \\ L_{M21} & L_{S2} & L_{M23} \\ L_{M31} & L_{M32} & L_{S3} \end{bmatrix}$ of a transposed line.(APRIL 2019)	L3	CO1
6.	A 400kv line in India use a 2-conductor bundle with $d_m=0.0318\text{m}$ for each conductor. The phase current is 1000 amps (500 amps per conductor). The area of each conductor is 515.7 mm^2 , $r_a=2.7 \times 10^{-4} \text{ ohm-m}$ at 20°C $\alpha=0.0045 \text{ ohm}/^\circ\text{C}$ at 20° take the ambient temperature $t_s = 40^\circ \text{C}$, atmospheric pressure, $p=1$, wind velocity $v_m=1 \text{ m/s}$ $e=0.5$ and neglect solar irradiation. Calculate the final temperature of conductor only due to FR heating.	L4	CO1
7.	The configuration of some EHV line for 400 kv to 1200 kv are given, calculate r_{eq} for each i) 400 kv ; $N = 2$, $d = 2r = 3.18\text{cm}$, $B = 45 \text{ cm}$ ii) 750 kv; $N = 4$, $d = 3.46 \text{ cm}$, $B = 45 \text{ cm}$ iii) 1000 kv $N = 6$, $d = 4.6 \text{ cm}$, $B = 12 \text{ d}$ iV) 1200 kv $N = 8$, $d = 4.6 \text{ cm}$, $R = 0.6 \text{ m}$	L4	CO1
8.	A 35 kv line has an ACSR blue bird conductor 1.762 inches (0.04477 m) in diameter with an equivalent radius for inductance calculation of 0.0181 m. The line height is 13m. Calculate the inductance per km length of conductor and the error caused by neglecting the internal flux linkage.	L4	CO1
9.	Explain about the inductance transformation to sequence quantities.	L5	CO1
10	Formulate the line capacitance calculation of an EHVAC transmission system.	L6	CO1

UNIT- II

S.NO	SECTION-I		
	1 MARKS QUESTIONS	BT Level	Course Outcome
1.	List out the properties which are to be considered for modeling of transmission lines.	L1	CO2
2.	Define transposition. Explain the procedure of transposition	L1	CO2
3.	What are the important properties of the field of point charge?	L1	CO2
4.	How voltage gradient is minimized in bundle conductors?	L1	CO2
5.	The field strength on the surface of a sphere of 1 cm radius is equal to the corona inception gradient in air of 30 kv/cm. Find the charge on the sphere	L1	CO2
6.	Derive the expression for charge potential relation for multi conductors. (APRIL 2019)	L3,L6	CO2
7.	Evaluate the expression for potential gradient at the surface of a conductor of 1-phase transmission line.	L3	CO2
8.	A point charge $Q = 10^{-6}$ coulomb ($1\mu\text{C}$) is kept on the surface of a conducting sphere of radius $r = 1\text{cm}$	L4	CO2
9.	A charge of $10\mu\text{C}$ is placed at a distance of 2m from the center of a sphere of radius 0.5 m	L4	CO2
10	Derive the expression for maximum and minimum voltage gradients of a bundle conductor having 2 sub conductors in a bundle.	L4	CO2

S.NO	SECTION-II		
	10 MARKS QUESTIONS	BT Level	Course Outcome
1.	Find Surface voltage gradient on conductors under, i) Maximum surface voltage gradients for $N \geq 3$. ii)Mangoldt formulae	L1	CO2
2.	Explain about the field of sphere gap in EHVAC system.	L2	CO2
3.	Show that maximum voltage gradient on a N-sub conductor bundle in a 3-phase system	L2	CO2
4.	.	L2	CO2
5.	Explain about the field of line charge and their properties.	L2	CO2
6.	Derive the expression for voltage gradient on sub conductors of a bundle conductor..(APRIL 2018)	L4	CO2
7.	Derive an expression for Mangoldt formula to evaluate the maximum surface voltage gradient on the centre-phase and outer phases in a 3-phase horizontal configuration.(APRIL 2019)	L4	CO2
8.	A sphere gap with sphere having radius $R = 0.5\text{ m}$ has a gap of 0.5 m between their surface i) Calculate the voltage gradient on the surface of high voltage sphere.	L4	CO2

	ii) If the practical break down of air occurs at 30 kv/cm peak, calculate the descriptive voltage between the spheres.		
9.	For a 700kv line, calculate the maximum surface voltage gradients on the center and outer phases in horizontal configuration at the maximum operating voltage of 750 kv, r.m.s line to line. The other dimensions are H = 15 m, S = 13 m, N = 2, r = 0.0159 m, B = 0.45 m	L4	CO2
10	Determine the maximum charge conduction on a 3-phase EHVAC lin	L5	CO2

UNIT III

S.NO	SECTION-I		
	1 MARKS QUESTIONS	BT Level	Course Outcome
1.	What is corona and explain.	L1	CO3
2.	Briefly discuss the Corona loss formulae. (APRIL 2018)	L1	CO3
3.	What are the advantages of corona.	L1	CO3
4.	Describe the importance of corona loss in D.C transmission.	L1	CO3
5.	Define effect of frequency.	L1	CO3
6.	Define effect of dust, rain, snow and hail.	L1	CO3
7.	Define propagation mode of radio interference and spacing between the conductors	L1	CO3
8.	Explain short note on radio interference due to corona.	L2	CO3
9.	Explain short note on lateral profile of radio interference.	L2	CO3
10	Explain a short notes on the affecting corona losses	L2	CO3

S.NO	SECTION-II		
	10 MARKS QUESTIONS	BT Level	Course Outcome
1.	Explain Briefly about charge voltage (1 - V) diagram and corona loss for, i) Increase in effective radius of conductor and coupling factors ii) Charge – voltage diagram with corona.	L1	CO3
2.	Explain briefly about the different corona loss formulae used in EHVAC line.	L2	CO3
3.	Derive the relation between 1-phase and 3-phase AN levels. (APRIL 2018)	L3	CO3
4.	Explain the generation, properties and limits of Corona pulses. (APRIL 2018)	L2	CO3
5.	Explain the procedure of measuring radio influence voltage (RIV) with the help of a radio noise meter.	L2	CO3

6.	With the help of a radio noise meter Write the procedure of measuring radio influence voltage (RIV)	L3	CO3
7.	Calculate the corona loss per km and the corona loss current, for the given data. Rate of rainfall $\rho = 5$ mm/hr, $K = 5.35 \times 10^{-10}$, $P_{FW} = 5$ kw/km, $V = 750$ kv line to line, $H = 18$ m, $S = 15$ m phase spacing, $N = 4$ sub conductors each of $r = 0.017$ m with bundle spacing $B = 0.457$ m. use surface voltage gradient on center phase for calculation.	L4	CO3
8.	A 735 kv line has the following details. $N = 4$, $d = 3.05$ cm, $B =$ bundle spacing $= 45.72$ cm, height $H = 20$ m, phase separation $S = 14$ m in horizontal configuration. By the Mangoldt formula, the maximum conductor surface voltage gradients are 20kv/cm and 18.4 kv/cm for the center and outer phases respectively. Analyze the SPL or AN in dB (A) at a distance of 30 m along ground from the centre phase (line center). Assume that the microphone is kept at ground level.	L4	CO3
9.	The AN level of one phase of 3-phase transmission line at point is 70 dB. Calculate i) The SPL in pascals ii) If a second source of noise contributes 65 dB at the same location, calculate the combined AN level due to the two sources.	L4	CO3
10	Discuss about the L_{50} level and formula developed by Bonneville power administration in U.S.A.	L6	CO3

UNIT IV

S.NO	SECTION-I		
	1 MARKS QUESTIONS	BT Level	Course Outcome
1.	List out the application rules which are to be followed while using the meters for the measurement of electrostatic field.	L1	CO4
2.	Define A, B, C, D constants of a transmission line.	L1	CO4
3.	Describe the difference between primary shock current and secondary shock current. (APRIL 2017)	L3	CO4
4.	Explain a short note on electromagnetic interference.	L2	CO4
5.	Explain a short on wave reflection and refraction	L2	CO4
6.	Explain about charging current and MVAR.	L2	CO4
7.	Illustrate a short note on electrostatic field of double circuit 3-phase AC line.	L2	CO4
8.	Illustrate a short note on electrostatic field using 6-phase line.	L2	CO4
9.	Derive the expression for reflection coefficients of transmission line when receiving end is open circuited.	L3	CO4
10	Derive the expression for refraction coefficients of transmission line when receiving end is open circuited	L3	CO4

S.NO	SECTION-II		
	10 MARKS QUESTIONS	BT Level	Course Outcome
1.	Illustrate briefly about electrostatic field of double circuit 3-phase AC line.	L1	CO4
2.	Explain briefly about electrostatic field using 6-phase line.	L2	CO4
3.	Illustrate briefly about effect of high electrostatic fields on humans, animals and plants.	L2	CO4
4.	Obtain electrostatic fields of single circuit 3-phase EHV line. (APRIL 2017)	L3	CO4
5.	Illustrate about interpret the results obtained using wave theory in terms of standing waves.	L2	CO4
6.	Derive the expressions for induced voltages in the un energized line when only one circuit is energized in the double circuit line. (APRIL 2018)	L4	CO4
7.	A 750 kv line has the distributed line constant $r=0.0025 \Omega/\text{km}$, $l=0.9 \text{ mH/km}$, and $C=12.3 \text{ nF/km}$. at 50 Hz, calculate the following if the line is 600 km in length. i) A, B, C, D constants ii) The charging current and MVAR at a receiving and voltage of 750 kv, line-line, on no-load iii) The surge- impedance loading.	L5	CO4
8.	Compute the r.m.s value of ground level electrostatic field of a 400kv line at its maximum operating voltage of 420 kv (line to line) given the following details. Single circuit horizontal configuration $H=13\text{m}$, $S=12\text{m}$, conductor $2 \times 3.18 \text{ cm}$ diameter, $B=45.72 \text{ cm}$.	L5	CO4
9.	Discuss the behavior of travelling wave when it reaches the end of short circuited transmission line. Draw diagrams to show voltage and current on the line before and after the wave reaches the end.	L6	CO4
10	Obtain the transient response of system with series and shunt lumped parameters and distributed lines.	L6	CO4

UNIT V

S.NO	SECTION-I		
	1 MARKS QUESTIONS	BT Level	Course Outcome
1.	What is the purpose and significance of power circle diagram.	L1	CO5
2.	What are the advantage and disadvantage of synchronous condenser?	L1	CO5
3.	What are the objectives of shunt compensation?	L1	CO5
4.	What are the merits and demerits of shunt compensation?	L1	CO5

5.	What are the merits and demerits of series compensation?	L1	CO5
6.	Explain a short on line with and without synchronous condenser.	L2	CO5
7.	Explain a short on voltage control by synchronous condenser.	L2	CO5
8.	Explain in detail static VAR compensation in EHV AC transmission. (APRIL 2018)	L2	CO5
9.	Discuss about series compensation and shunt compensation.	L2	CO5
10	Explain the phenomena of sub-synchronous resonance.	L2	CO5

S.NO	SECTION-II		
	10 MARKS QUESTIONS	BT Level	Course Outcome
1.	Explain the power circle diagram and its use in voltage control. (APRIL 2018)	L2	CO5
2.	Write the operation of synchronous condenser and mention its application.	L1	CO5
3.	Explain the voltage control using synchronous condenser. (APRIL 2019)	L2	CO5
4.	Discuss briefly about the evaluation of transmission line constants.	L2	CO5
5.	Illustrate the compensator TCR to meet the reactive power requirement.	L2	CO5
6.	Illustrate various static VAR compensators for reactive power control in EHV system.	L2	CO5
7.	Explain about the static VAR generators.	L2	CO5
8.	Explain briefly about series compensation of transmission system.	L2	CO5
9.	Explain about series capacitor compensation at line centre.	L2	CO5
10	A 420 kV line is 750 km long. Its inductance and capacitance per km are $L=1.5$ mH/km and $C=10.5$ nF/km. The voltages at the two ends are to be held 420 kV at no load. Neglect resistance. Calculate MVAR of shunt reactors to be provided at the two ends and at intermediate station midway with all four reactors having equal resistance.(APRIL 2017)	L5	CO5

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

Recognized under 2(f) and 12(B) of UGC Act 1956

IV B.Tech – II Semester – End Examinations (Regular/Suppl.) - April - 2017**EHV AC TRANSMISSION**

(Electrical & Electronics Engineering)

Duration: 3 Hrs**Max Marks: 70M****Section – A****Answer All the following questions****Marks: 5x4 = 20M**

1. Discuss why EHV AC Lines are necessary to transmit large blocks of power over long distances.
2. Why the Inductance and capacitance transformation required in Sequence Quantities in EHV-AC lines?
3. Explain the field of line charges and their properties.
4. Explain the lateral profile of RI and modes of propagation in EHV lines.
5. Describe the difference between primary shock current and secondary shock current.

Section – B**Answer any FIVE of the following questions****Marks: 5x10 = 50M**

6. A power of 1200 MW is required to be transmitted over a distance of 1000 km. At voltage levels of 400 KV, 750 KV, 1000 KV and 1200 KV, Determine:
 - i) Possible number of circuits required with equal magnitudes for sending and receiving end voltages with 30° phase difference.
 - ii) The current transmitted and
 - iii) Total line losses.
7. a) Explain in detail capacitances and inductances of ground return and derive necessary expressions.
b) What are the Conductor configurations used for bundles in E.H.V. lines and also explain properties of Bundled conductors?
8. If corona-inception gradient is measured in a h. v. testing laboratory at an elevation of 1000 meters and 25°C, give correction factors to be used when the equipment is used at
 - (a) Sea level at 35°C, and
 - (b) 2000 m elevation at 15°C. Use conductor radius = r meter.

The following is the data for a 750 KV line. Calculate the corona loss per Km and the corona loss current. Rate of rainfall $p = 5$ mm/hr, $K = 5.35 \times 10^{-10}$, PFW = 5 KW/km $V = 750$ KV line to line, $H = 18$ m, $S = 15$ m phase spacing, $N = 4$ sub conductors each of $r = 0.017$ m with bundle spacing $B = 0.457$ m. Use surface voltage gradient on center phase for calculation.

P.T.O

9. a) Discuss different corona loss formula used in EHV AC transmission Line.
b) State the different factors that affect the Audible noise generated in EHV AC Line.
10. a) Calculate and plot the field factor for the 3-modes of propagation for a line with $H=15$ m, $S=12$ m as the distance from the line center is varied from 0 to $3H$.
b) A double exponential pulse has crest time $t_p=50$ nsec, and time to 50 % value on tail equal to $t_t=100$ n sec. Calculate α , β and K and also write the equation to pulse in terms of peak value i_p .
11. Obtain electrostatic fields of single circuit 3-phase EHV line.
12. Compute the RMS values of ground level E.S field of a 400 KV line at its maximum operating voltage of 420 KV (L-L) given the following details: Single circuit horizontal configuration $H=13$ m, $S=12$ m, conductor 2×3.18 cm diameter, $B = 45.7$ cm. Vary the horizontal distance along ground from the line centre from 0 to $3H$.
13. A 420 kV line is 750 km long. Its inductance and capacitance per km are $L=1.5$ mH/km and $C=10.5$ nF/km. The voltages at the two ends are to be held 420 kV at no load. Neglect resistance. Calculate MVAR of shunt reactors to be provided at the two ends and at intermediate station midway with all four reactors having equal resistance.

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IV B.Tech - II Semester –End Examinations (Regular) April - 2018**EHV AC Transmission**

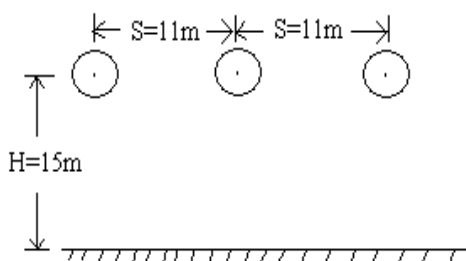
(Electrical & Electronics Engineering)

Duration: 3 Hrs**Max Marks: 70M****Section – A****Answer All the following questions****Marks: 5Qx4M = 20M**

1. Calculate the GMR of the bundle conductor having 8 sub conductors in the bundle, 0.6 m bundle radius and sub conductor diameter is 4.6 cm.
2. Derive the expression for maximum and minimum voltage gradients of a bundle conductor having 2 sub conductors in a bundle.
3. Briefly discuss the Corona loss formulae.
4. Explain the effect of electrostatic field on humans, animals and plants.
5. Explain in detail static VAR compensation in EHV AC transmission.

Section – B**Answer any FIVE questions choosing at least one from each Unit****Marks: 5Qx10M = 50M****UNIT – I**

6. The dimensions of the 3-phase, 400 kV horizontal line shown in the figure are $H = 15$ m, $S = 11$ m phase separation, Conductor is 2×3.18 cm diameter, Bundle spacing $B = 45.72$ cm. Calculate the matrix of inductance per km for transposed and un transposed lines.

**(OR)**

7. Explain the different modes of propagation of an inductance matrix:

$$L = \begin{bmatrix} L_S & L_m & L_m \\ L_m & L_S & L_m \\ L_m & L_m & L_S \end{bmatrix}$$

UNIT – II

8. Derive the expression for maximum surface voltage gradient on the centre and outer phases in a 3-phase horizontal configuration.

(OR)

9. Derive the expression for voltage gradient on sub conductors of a bundle conductor.

UNIT - III

10. a) Explain the measurement of RIV with neat diagram.
b) Derive the relation between 1-phase and 3-phase AN levels.

(OR)

11. a) Explain the measurement of RI with neat diagram.
b) Explain the generation, properties and limits of Corona pulses.

UNIT – IV

12. Derive the expression for total electrostatic field component of a 3-phase, single circuit AC line.

(OR)

13. Derive the expressions for induced voltages in the un energized line when only one circuit is energized in the double circuit line.

UNIT-V

14. a) Explain cascade connection of components in shunt and series compensation.
b) Explain the power circle diagram and its use in voltage control.

(OR)

15. a) Explain the voltage control using synchronous condenser.
b) Explain the sub synchronous resonance in a series capacitor.

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IV B.Tech - II Semester –End Examinations (Regular/Suppl.) April – 2019**EHV AC Transmission**

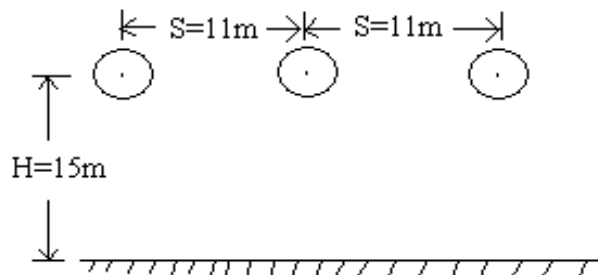
(Electrical & Electronics Engineering)

Duration: 3 Hrs**29.04.2019****Max Marks: 70M****Section – A****Answer All the following questions****Marks: 5Qx4M****= 20M**

1. Discuss the necessity of EHVAC Transmission over other transmission.
2. Derive the expression for charge potential relation for multi conductors.
3. Discuss in brief the frequency spectrum of RI fields.
4. Write short notes on no load voltage conditions and charging current.
5. Explain the Power circle and its use in voltage control.

Section – B**Answer any FIVE questions choosing at least one from each Unit****Marks: 5Qx10M = 50M****UNIT – I**

6. The dimensions of the 3-phase, 400 kV horizontal line shown in the figure are $H=15\text{ m}$ $S = 11\text{ m}$ phase separation, Conductor is $2 \times 3.18\text{ cm}$ diameter, Bundle spacing $B= 45.72\text{ cm}$. Calculate the matrix of capacitance per km for transposed and un transposed lines.

**(OR)**

7. Write down the procedure for diagonalization of Inductance matrix

$$L = \begin{bmatrix} L_S & L_m & L_m \\ L_m & L_S & L_m \\ L_m & L_m & L_S \end{bmatrix} \text{ of a transposed line.}$$

UNIT – II

8. Derive an expression for Mangoldt formula to evaluate the maximum surface voltage gradient on the centre-phase and outer phases in a 3-phase horizontal configuration.

(OR)

9. Derive the expression for voltage gradient of a two conductor line.

UNIT - III

10. What is audible noise? How they are generated? Explain its characteristics and limits.

(OR)

11. a) Explain the measurement of RI with neat diagram.
b) Discuss the Corona loss formulae.

UNIT – IV

12. Derive the expression for total electrostatic field component of a 3-phase, double circuit AC line.

(OR)

13. Derive the expressions for voltages induced in the un energized conductors of a 3- phase double circuit line when one circuit is energized and the other is un energized.

UNIT - V

14. a) Explain the voltage control using synchronous condenser.
b) Explain the static VAR compensating system used in voltage control.

(OR)

15. a) Explain the cascade connection of series and shunt compensation.
b) Explain the sub synchronous resonance in a series capacitor.

IV B.Tech - II Semester - I Mid Term Examinations

(R14EEE1127) EHV AC Transmission

(Electrical & Electronics Engineering)

Duration: 90Mins

Date: 16.02.2019 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. State and elplicate the advantages of the EHV transmission system.
2. Write short note on Hollow conductors.
3. Define transposition. Explain the procedure of transposition.
4. Explicate a short on the field of line charge and their properties.
5. Describe the importance of corona loss in D.C transmission.

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

- 6.Elucidate about the power handling capacity and line loss in EHVAC transmission.
- 7.Briefly describe about the inductance transformation to sequence quantities.
- 8.Obtain the maximum charge conduction on a 3-phase EHVAC line.
- 9.Show that maximum voltage gradient on a N-sub conductor bundle in a 3-phase system.
- 10.Elucidate briefly about the different corona loss formulae used in EHVAC line.
- 11.Briefly writ about charge voltage (1 - V) diagram and corona loss for,
 - a.Increase in effective radius of conductor and coupling factors
 - b.Charge – voltage diagram with corona.

IV B.Tech - II Semester - II Mid Term Examinations**(R14EEE1127) EHV AC Transmission**

(Electrical & Electronics Engineering)

Duration: 90Mins**Date: 17.04.2019 FN****Max Marks: 25M****Section – A****Answer All the questions****Marks 5Qx1M = 5M**

1. Define propagation mode of radio interference and spacing between the conductors.
2. Illustrate a short note on electrostatic field using 6-phase line.
3. Derive the expression for refraction coefficients of transmission line when receiving end is open
4. What are the merits and demerits of series compensation?
5. Explain the phenomena of sub-synchronous resonance.

Section – B**Answer any FOUR questions****Marks: 4Qx5M = 20M**

6. Calculate the corona loss per km and the corona loss current, for the given data.
Rate of rainfall $\rho = 5$ mm/hr, $K = 5.35 \times 10^{-10}$, $P_{FW} = 5$ kw/km, $V = 750$ kv line to line, $H = 18$ m, $S = 15$ m phase spacing, $N = 4$ sub conductors each of $r = 0.017$ m with bundle spacing $B = 0.457$ m. use surface voltage gradient on center phase for calculation.
7. The AN level of one phase of 3-phase transmission line at point is 70 dB. Calculate
 - i) The SPL in pascals
 - ii) If a second source of noise contributes 65 dB at the same location, calculate the combined AN level due to the two sources.
8. Derive the expression for voltage and current using wave theory.
9. Obtain the transient response of system with series and shunt lumped parameters and distributed lines.
10. Illustrate various static VAR compensators for reactive power control in EHV system.
11. Explain about series capacitor compensation at line centre.

NEURAL NETWORKS & FUZZY LOGIC

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**(An Autonomous Institution under UGC, New Delhi)****B.Tech. - IV Year – II Semester**

L	T	P	C
3	1	0	3

(R16CSE1144) NEURAL NETWORKS AND FUZZY LOGIC**Objectives**

This course introduces the basics of Neural Networks and essentials of Artificial Neural Networks with Single Layer and Multilayer Feed Forward Networks. Also deals with Associate Memories and introduces Fuzzy sets and Fuzzy Logic system components. The Neural Network and Fuzzy Network system application to Electrical Engineering is also presented. This subject is very important and useful for doing Project Work

UNIT -I:

Introduction & Essentials to Neural Networks: Introduction, Humans and Computers, Organization of the Brain, Biological Neuron, Biological and Artificial Neuron Models, Hodgkin-Huxley Neuron Model, Integrate-and-Fire Neuron Model, Spiking Neuron Model, Characteristics of ANN, McCullochPitts Model, Historical Developments, Potential Applications of ANN. Artificial Neuron Model, Operations of Artificial Neuron, Types of Neuron Activation Function, ANN Architectures, Classification Taxonomy of ANN – Connectivity, Neural Dynamics (Activation and Synaptic), Learning Strategy (Supervised, Unsupervised, Reinforcement), Learning Rules, Types of Application

UNIT –II:

Single & Multi Layer Feed Forward Neural Networks : Introduction, Perceptron Models: Discrete, Continuous and Multi-Category, Training Algorithms: Discrete and Continuous Perceptron Networks, Perceptron Convergence theorem, Limitations of the Perceptron Model, Applications. Credit Assignment Problem, Generalized Delta Rule, and Derivation of Back propagation (BP) Training, Summary of Backpropagation Algorithm, Kolmogorov Theorem, Learning Difficulties and Improvements.

UNIT –III:

Associative Memories-I: Paradigms of Associative Memory, Pattern Mathematics, Hebbian Learning, General Concepts of Associative Memory (Associative Matrix, Association Rules, Hamming Distance, The Linear Associator, Matrix Memories, Content Addressable Memory).

UNIT -IV:

Associative Memories-II: Bidirectional Associative Memory (BAM) Architecture, BAM Training Algorithms: Storage and Recall Algorithm, BAM Energy Function, Proof of BAM Stability Theorem. Architecture of Hopfield

Network: Discrete and Continuous versions, Storage and Recall Algorithm, Stability Analysis, Capacity of the Hopfield Network Summary and Discussion of Instance/Memory Based Learning Algorithms, Applications.

UNIT -V:

Fuzzy Logic: Classical & Fuzzy Sets: Introduction to classical sets - properties, Operations and relations; Fuzzy sets, Membership, Uncertainty, Operations, properties, fuzzy relations, cardinalities, membership functions.

Fuzzy Logic System Components: Fuzzification, Membership value assignment, development of rule base and decision making system, Defuzzification to crisp sets, De-fuzzification methods.



SRI INDU COLLEGE OF ENGG & TECH

LESSON PLAN

(Regulation :R16)

Department of Electrical and Electronics Engineering

Prepared on

Rev1:

Page: 1 of 6

Sub. Code & Title R16CSE1141 NEURAL NETWORKS AND FUZZY LOGIC

Academic Year: 2020-21

Year/Sem./Section

IV/II

Faculty Name & Designation

DR.JOSEPH PRABHAKAR WILLIAMS .Prof

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Proposed Date of Handling	CO/RBT
			From	To				
	UNIT-I							
I	Introduction & Essentials to Neural Networks					12		
1.1	Introduction, Humans and Computers	T1 T2	11 1	15 7	Black board	01	22.03.2021	CO-1, L1
1.2	Organization of the Brain, Biological Neuron	T1 T2	12 4	13 7	Black board	01	22.03.2021	CO-1,L1
1.3	Biological and Artificial Neuron Models	R2 R4	26 10.2	29 10.7	Black board	01	23.03.2021	CO-2,L2
1.5	Hodgkin-Huxley Neuron Model, McCulloch Pitts Model	T2 R2	12 11.1	16 11.4	Black board	01	23.03.2021	CO-2,L2
1.6	Characteristics of ANN	T1	19	21	Black board	01	24.03.2021	CO-2,L1
1.7	Historical Developments, Operations of Artificial Neuron	T1	22	26	Black board	01	24.03.2021	CO-2,L1
1.8	Types of Neuron Activation Function	T2 R4	37 10.3	40 10.5	Presentation	01	29.03.2021	CO-2,L3
1.9	ANN Architectures	T1	16	18	Presentation	01	29.03.2021	CO-1,L1
1.10	Classification Taxonomy of ANN	T1	21	22	Presentation	01	30.03.2021	CO-2,L2
1.11	Connectivity, Neural Dynamics (Activation and Synaptic)	T2	17	20	Presentation	01	30.03.2021	CO-2,L3
1.12	Learning Strategy (Supervised, Unsupervised, Reinforcement)	T1 R4	19 10.6	20 10.16	Black board	01	31.03.2021	CO-1,L2
1.13	Learning Rules, Types of Application	R2 T1	55 30	64 31	Black board	01	31.03.2021	CO-3,L3
		Signature of the HOD/Coordinator						
Unit/ Item No.	UNIT-II	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
II	Single & Multi Layer Feed Forward Neural Networks					12		
2.1	Introduction, Perceptron Models: Discrete Category	R2 T2	120 44	131 48	Black board	01	05.04.2021	CO-2,L2
2.2	Perceptron Models: Continuous Category	R2	132	141	Black board	01	05.04.2021	CO-2,L2
2.3	Perceptron Models: Multi-Category	R2 R4	142 48	146 55	Black board	01	06.04.2021	CO-2,L3
2.4	Training Algorithms: Discrete Perceptron Networks	T1 T2	39 132	40 138	Presentation	01	06.04.2021	CO-1,L1
2.5	Training Algorithms: Continuous Perceptron Networks & Perceptron Convergence theorem	T1	41	45	Black board	01	07.04.2021	CO-3,L3
2.6	Limitations of the Perceptron Model & Applications.	T2	142	148	Black board	01	07.04.2021	CO-3,L2
2.7	Credit Assignment Problem & Generalized Delta Rule	R5 T2	107 87	116 95	Black board	01	12.04.2021	CO-3,L2
2.8	Derivation of Back propagation (BP) Training	R4	12.1	12.5	Black board	02	12.04.2021	CO-3,L2
2.9	Summary of Back propagation Algorithm	T1	53	58	Black board	01	19.04.2021	CO-4,L2
2.10	Kolmogorov Theorem	R2	181	185	Black board	01	19.04.2021	CO-1,L2
2.11	Learning Difficulties and Improvements	T1	69	78	Black board	01	20.04.2021	CO-3,L3
		Signature of the HOD/Coordinator						
III	Associative Memories-I					12		
3.1	Paradigms of Associative Memory	R5	146	147	Presentation	02	20.04.2021	CO-4,L6
3.2	Pattern Mathematics	R5	147	150	Presentation	01	26.04.2021	CO-1,L2



SRI INDU COLLEGE OF ENGG & TECH

LESSON PLAN

(Regulation :R16)

Department of Electrical and Electronics Engineering

Prepared on

Rev1:

Page: 2 of 6

Sub. Code & Title R16CSE1141 NEURAL NETWORKS AND FUZZY LOGIC

Academic Year: 2020-21

Year/Sem./Section

IV/II

Faculty Name & Designation

DR.JOSEPH PRABHAKAR WILLIAMS .Prof

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Proposed Date of Handling	CO/RBT
			From	To				
3.3	Hebbian Learning	T2	60	63	Black board	02	26.04.2021	CO-4,L2
3.4	General Concepts of Associative Memory	T2	320	330	Black board	01	27.04.2021	CO-4,L2
3.5	Associative Matrix	R5	148	149	Black board	01	27.04.2021	CO-4,L3
3.6	Association Rules	T2	313	317	Black board	01	28.04.2021	CO-4,L2
3.7	Hamming Distance	R5	142	144	Black board	01	28.04.2021	CO-1,L1
3.8	The Linear Associator	R5	144	145	Black board	01	03.05.2021	CO-1,L2
3.9	Matrix Memories	T2	117	119	Black board	01	03.05.2021	CO-1,L2
3.10	Content Addressable Memory	T2	137	138	Black board	01	04.05.2021	CO-4,L2

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UNIT-IV

IV	Associative Memories-II		12					
4.1	Bidirectional Associative Memory (BAM) Architecture	R5 R4	145 12.9	46 12.10	Presentation	01	04.05.2021	CO-1,L1
4.2	BAM Training Algorithms: Storage Algorithm	T2	315	319	Presentation	01	05.05.2021	CO-5,L2
4.3	BAM Training Algorithms: Recall Algorithm	T2	185	186	Black board	01	05.05.2021	CO-4,L4
4.4	BAM Energy Function	T1 R4	92 12.11	100 12.12	Black board	01	10.05.2021	CO-4,L6
4.5	Proof of BAM Stability Theorem	R5	150	154	Presentation	01	10.05.2021	CO-4,L2
4.7	Architecture of Hopfield Network- Discrete versions	R4 T2	12.14 254	12.16 263	Presentation	01	11.05.2021	CO-5,L2
4.8	Architecture of Hopfield Network: Continuous versions	R5 T2	158 264	162 271	Black board	01	11.05.2021	CO-4,L3
4.9	Storage and Recall Algorithm	T2	327	333	Black board	01	12.05.2021	CO-4,L2
4.10	Stability Analysis	T2	359	362	Black board	01	12.05.2021	CO-4,L2
4.11	Capacity of the Hopfield Network Summary	R4	12.17	12.19	Black board	01	17.05.2021	CO-4,L4
4.12	Discussion of Instance/Memory Based Learning Algorithms	T1	105	110	Black board	01	17.05.2021	CO-4,L6
4.13	Applications	R4	12.10	12.12	Black board	01	18.05.2021	CO-4,L2

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UNIT-V

V	Fuzzy Logic: Classical & Fuzzy Sets		12					
5.1	Introduction to classical sets	T4	2.1	2.2	Presentation	01	18.05.2021	CO-5,L1
5.2	Properties, Operations & Relations	T1	163	168	Presentation	01	19.05.2021	CO-5,L2
5.3	Fuzzy sets	R4	2.8	2.12	Black board	01	19.05.2021	CO-5,L6
5.4	Membership, Uncertainty	T1 R4	160 3.7	161 3.8	Black board	01	24.05.2021	CO-5,L3
5.5	Operations, properties	T1	161	162	Black board	01	24.05.2021	CO-5,L3
5.6	Fuzzy relations, cardinalities	T1 R4	171 3.1	174 3.4	Presentation	01	25.05.2021	CO-5,L2
5.7	Membership functions	T1 R4	169 4.3	170 4.5	Black board	01	25.05.2021	CO-5,L2
5.8	Fuzzy Logic System Components: Fuzzification	R4	4.1	4.2	Black board	01	26.05.2021	CO-5,L3
5.9	Membership value assignment	R4	4.6	4.10	Black board	01	26.05.2021	CO-5,L6
5.10	Development of rule base and decision making system	R4	6.7	6.10	Black board	01	31.05.2021	CO-5,L6
5.11	Defuzzification to crisp sets	R4 T1	7.1 179	7.4 184	Black board	01	31.05.2021	CO-5,L1
5.12	De-fuzzification methods	R4	7.7	7.13	Black board	01	31.05.2021	CO-5,L2

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SRI INDU COLLEGE OF ENGG & TECH
LESSON PLAN

(Regulation :R16)

Department of Electrical and Electronics Engineering

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Academic Year: 2020-21	Year/Sem./Section	IV/II	
Faculty Name & Designation	DR.JOSEPH PRABHAKAR WILLIAMS .Prof		

LIST OF TEXT BOOKS AND REFERENCES

Text Books:

- T1-Neural Networks, Fuzzy logic, Genetic algorithms: synthesis and applications,
Rajasekharan and Pai, PHI
T2- Neural Networks and Fuzzy Logic, C. Naga Bhaskar, G.Vijay Kumar,
BS Publications

Reference Books:

- R1- Artificial Neural Networks, B.Yegnanarayana, PHI.
R2.-Artificial Neural Networks, Zaruda, PHI.
R3 -Neural Networks and Fuzzy Logic System, Bart Kosko, PHI.
R4 - Fuzzy Logic and Neural Networks, M. Amirthavalli, Scitech Publications India Pvt. Ltd
R5 -Neural Networks, James A Freeman and Davis Skapura, Pearson Education.
R6- Neural networks by Satish Kumar, TMH, 2004
R7- Neural Networks, Simon Hakins, Pearson Education.
R8- Neural Engineering, C.Eliasmith and CH.Anderson, PHI.

Web links

- W1. <https://www.sciencedirect.com/topics/engineering/neural-network-architecture>
W2. <http://computationalsciencewithsuman.blogspot.com/p/single-layer-and-multilayer-feed.html>
W3. https://www.tutorialspoint.com/artificial_neural_network/artificial_neural_network_associate_memory.htm
W4. http://ele.aut.ac.ir/~abdollahi/Lec_5_NN11.pdf
W5 <https://www.geeksforgeeks.org/fuzzy-logic-set-2-classical-fuzzy-sets/>



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DR.JOSEPH PRABHAKAR WILLIAMS .Prof

CONTENT BEYOND THE SYLLABUS


S.No	Topics	Proposed Actions	Date	Resource Person/Mode	POs	PSOs
1.	Advanced CAM	PPT & Videos		Self/Projector	PO-1,2,3	PSO-1,2
2.	Memory based Learning Algorithms	PPT & Videos		Self/Projector	PO-1,2,3,4	PSO-1,2

ASSIGNMENT

S.No.	Assignment Questions	Course Outcome	Books To be Referred	Date Of Announcement	Date Of Submission
1.	Illustrate McCulloch Pitts Model	CO1 L2-Understanding	T-2 & 3	05.04.2021	12.04.2021
2.	Write the Storage and Recall Algorithm	CO3 L3-Applying	T-2	26.04.2021	05.05.2021
3.	Derive the Membership value assignment	CO3 L1- Remembering	T-3	17.05.2021	26.05.2021

SELF STUDY TOPICS

S.No.	Topics	Books & Journals	Course Outcomes
1.	Matrix Memories	T2	CO-1,L2
2.	Membership value assignment	R4	CO-5,L6


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QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)

(1. Remembering, 2. Understanding, 3. Applying, 4. Analyzing, 5. Evaluating, 6. Creating)

UNIT-1- INTRODUCTION & ESSENTIALS TO NEURAL NETWORKS

1 MARK QUESTIONS		BT Level	Course Outcome
1.	Write short notes on ADALINE Network?	2	CO1
2.	List the applications of artificial neural network?	1	CO1
3.	Write the organization of the brain in detail? - April 2018, April 2019	2	CO1
4.	Formulate the following logic functions using MC-Culloch pitts model i. Ex-OR gate. ii. Ex-NOR gate.	5	CO1
5.	Formulate the following logic functions using MC-Culloch pitts model i. AND gate. ii. NAND gate.	5	CO1
6.	Write short notes on Learning Strategy - April 2017	3	CO1
7.	How do you justify that brain is a parallel distributed processing system?	6	CO1
8.	Mention types of Neuron Activation Functions?	1	CO1
9.	Illustrate the Operations of Artificial Neuron.	2	CO1
10.	Write shorts on Correlation Learning Rules?	3	CO1
10 MARKS QUESTIONS			
1.	Contrast the difference between biological neuron networks and artificial neuron networks? April 2017	2	CO1
2.	Illustrate the biological neuron. Compare this with the artificial neuron model? April 2017	2	CO1
3.	Classify the applications of neural network?	4	CO1
4.	Describe briefly about Hodgkin-Huxley neuron model?- April 2019	5	CO1
5.	Explain in detail about the Spiking neuron model. April 2019	5	CO1
6.	Distinguish between single layer and multilayer feed forward networks? April 2017	4	CO1
7.	Compare and contrast supervised and unsupervised learning strategies? April 2018	5	CO1
8.	Describe the Hebbian learning rule? April 2017	3	CO1
10.	Illustrate Delta learning rule with an example? April 2018	2	CO1

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UNIT -II : SINGLE & MULTI LAYER FEED FORWARD NEURAL NETWORKS

1 MARK QUESTIONS

1.	Sketch the block diagram of a pattern classifier?	1	CO2
2.	List the advantages of perceptron model?	2	CO2
3.	What are the disadvantages of perceptron model? April 2018	1	CO2
4.	Classify the two self-organized features of maps?	4	CO2
5.	State the perceptron convergence theorem?	3	CO2
6.	Justify the limitations of back propagation algorithm?	5	CO2
7.	Define the term uncertainty.	1	CO2
8.	Examine the significance of momentum term in back propagation learning?	4	CO2
9.	State and prove Kolmogorov's theorem? April 2017	3	CO2
10.	Define Sigmoid gain.	1	CO2

10 MARKS QUESTIONS

1	Design a single layer network with continuous perceptions? April 2018	3	CO2
2	What is XOR problem? Draw and explain the architectural graph of network for Solving the XOR problem? April 2017	3	CO2
3	Examine the role of discriminate function in classification of neural Networks?	4	CO2
4	Evaluate the single discrete perception training algorithm (SDPTA)?	5	CO2
5	State and prove perceptron convergence theorem?	3	CO2
6	Explain back propagation? Derive its learning algorithm with a schematic two layer Feed forward neural network?	3	CO2
7	Draw a suitable diagram, derive the weight update equations in back propagation Algorithm for a multilayer feed forward neural network and design. April 2017	4	CO2
8	Explain the effect of Learning rate and momentum terms in weight update equations?	3	CO2
9	Demonstrate the various parameters in back propagation network?	2	CO2

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10	I Illustrate the sigmoidal gain and Threshold value in back propagation algorithm?	3	CO2
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UNIT – III : ASSOCIATIVE MEMORIES-I

1 MARK QUESTIONS

1.	What is Hebbian learning? April 2017, April 2018	2	CO3
2.	Write about the address-addressable memory?	1	CO3
3	Define the hamming distance? April 2017	1	CO3
4.	Write about the memory based learning?	1	CO3
5	Draw the block diagram of associative memory? April 2019	2	CO3
6.	is Hetero-associative memory? April 2019, April 2018	1	CO3
7	What is Auto-associative memory? April 2019, April 2018	1	CO3
8.	List the associate rules? April 2019	1	CO3
9.	e Associative matrix? April 2018	1	CO3
10.	Sketch the block diagram of static associative memory.	2	CO3

10 MARKS QUESTIONS

1	Distinguish Hetero-associative memory and auto-associative memory?	4	CO3
2	What is Hebbian learning? Examine its role in linear associative? April 2017, April 2019	4	CO3
3	With a neat diagram explain discrete-time bidirectional associative memory. April 2018	2	CO3
4	Describe in detail memory-based learning algorithms?	3	CO3
5	List the applications of instance-based and memory-based learning algorithms?	3	CO3
6	Explain activation model, learning method for solving non-linear activation problems?	5	CO3
7	Describe in detail memory based learning? April 2019	4	CO3
8	Determine and develop the architectural graph of a Hopfield network consisting of N=4 neurons?	5	CO3
9	Explain in detail discrete Hopfield network? April 2018	2	CO3

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10	in in detail about continuous Hopfield network? April 2018	2	CO3
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UNIT-IV-ASSOCIATIVE MEMORIES-II

1 MARK QUESTIONS

1	Describe the architecture of BAM. April 2017, April 2019	2	CO4
2	What is the Hopfield network? April 2018, April 2019	1	CO4
3	Execute the stability analysis of continuous version of the Hopfield models. April 2018	5	CO4
4	Execute the stability analysis of discrete version of the Hopfield models.	5	CO4
5	Write short notes on address-addressable memory?	1	CO4
6	Name the modes of operation of a Hopfield network?	1	CO4
7	Describe storage in Bidirectional associative memory? April 2018	2	CO4
8	Recall the algorithm in Bidirectional associative memory April 2018	3	CO4
9	Write short notes on memory based learning applications	1	CO4
10	List applications of decision instances?	2	CO4

10 MARKS QUESTIONS

1	State and prove the BAM stability theorem. April 2017	4	CO4
2	Write note on the Bidirectional Associate memories?	1	CO4
3	Demonstrate on memory based learning algorithms. April 2018, April 2019	3	CO4
4	Write the stability analysis of discrete and continuous version of the Hopfield models.	1	CO4
5	Illustrate energy analysis of discrete Hopfield network?	3	CO4
6	Describe in detail content addressable memory. April 2018	2	CO4
7	Write about stability analysis. April 2018	4	CO4

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8	Write about the capacity of the Hopfield Network.	2	CO4
9	Explain in detail the Bidirectional memory based learning algorithm and applications.	2	CO4
10	Describe in detail BAM energy function.	2	CO4

UNIT-V-FUZZY LOGIC: CLASSICAL & FUZZY SETS

1 MARK QUESTIONS

1.	What are features of membership functions?	1	CO5
2.	Label the trapezoidal membership functions? April 2017	2	CO5
3.	List the properties of crisp relations. April 2017	1	CO5
4.	State the major implicit assumptions in a fuzzy control systems design.	1	CO5
5.	Write short notes on Decision making logic in fuzzy logic control system. April 2018	4	CO5
6.	Write the importance of fuzzy logic control in various fields.	2	CO6
7.	Define Defuzzification? April 2017	2	CO6
8.	What are the rules based format used to represent the fuzzy information? April 2017	1	CO6
9.	Write short notes on Fuzzy neural networks.	2	CO5
10.	Write about aggregation of fuzzy rules? April 2018	1	CO6

10 MARKS QUESTIONS

1	Write short notes on the following: i. Fuzzy synthesis evaluation ii. Fuzzy ordering iii. Preferences and consensus	1	CO5
2	Classify the Fuzzy logic controllers based on the fuzzy rule formats.	2	CO5
3	Draw a block diagram of a possible fuzzy logic control systems. Explain about each Block?	4	CO5
4	Write short notes on fuzzification interface. April 2017	1	CO6
5	Write in detail about the block flow diagram of a classical feedback control system.	3	CO6
6	Compare and contrast Fuzzy logic control and conventional control systems.	2	CO6
7	Compare and contrast Fuzzy logic control and classical control.	2	CO5
8	Apply the fuzzy Modus ponens rule to deduce Rotation is quite slow given. i. If the temperature is high then rotation is slow. ii. The temperature is very high.	3	CO5



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9	Write in detail the methods to generate membership functions? April 2017	4	CO5
10	Write in detail the methods to generate membership functions? April 2018	4	CO6

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IV B.Tech – II Semester – End Examinations (Regular/Suppl.) - April - 2019**NEURAL NETWORKS AND FUZZY LOGIC**

(Electrical & Electronics Engineering)

Duration: 3 Hrs**Max Marks: 70M****Section – A****Answer All the following questions****Marks: 5x4 = 20M**

1. Explain organization of human brain.
2. Give the characteristics of ANN.
3. Explain content addressable memory.
4. Write about kolmogorov theorem.
5. Define uncertainty with an example..

Section – B**Answer any FIVE of the following questions****Marks: 5x10 = 50M****UNIT - I**

6. Explain spiking neuron model and Hodgkin Huxley neuron model.

(OR)

7. Explain historical developments and potential applications of ANN.

UNIT – II

8. Explain training algorithm for perceptron network.

(OR)

9. Explain credit assignment problem, learning difficulties and improvements in BPN.

UNIT - III

10. Explain hebbian learning rule with necessary equations.

(OR)

11. Explain the concept of associative matrix and association rules.

UNIT – IV

12. Explain Memory based learning algorithms and applications.

(OR)

13. Explain the architecture of Hopfield Network and BAM stability theorem.

UNIT-V

14. Explain membership value assignment with examples.

(OR)

15. Explain the development of rule base and decision making system.

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IV B.Tech - II Semester –End Examinations (Regular) April - 2018**NEURAL NETWORKS AND FUZZY LOGIC**

(Electrical & Electronics Engineering)

Duration: 3 Hrs**Max Marks: 70M****Section – A****Answer All the following questions****Marks: 5Qx4M = 20M**

- 1.. Describe the organization of Brain.
2. Describe the Generalized Delta Rule.
3. Write short notes on paradigms of Associative memories.
4. Describe about the capacity of Hopfield network.
5. Explain about the properties and operations of fuzzy sets

Section – B**Answer any FIVE questions choosing at least one from each Unit****Marks: 5Qx10M = 50M****UNIT - I**

6. a) Describe about supervised learning, unsupervised learning and reinforcement learning.
b) Explain different activation functions of ANN.

(OR)

7. Draw and explain the Integrate and Fire neuron model.

UNIT - II

8. Explain the training algorithm of Continuous Perceptron network with a neat sketch.

(OR)

9. a) Discuss credit assignment problem.
b) Explain the limitations of Perceptron model.

UNIT - III

10. a) Describe Hebbian learning rule.
b) Give a brief concept of Pattern Mathematics.

(OR)

11. a) Write about Content Addressable Matrix in Associative memories.
b) Explain about the matrix memories related to associative memories.

UNIT - IV

12. Describe about the Continuous version of Hopfield neural network with a neat sketch.

(OR)

13. Describe about the storage, recall algorithm and stability analysis of Hopfield neural Network.

UNIT - V

14. Explain about the development of rule based and decision making system in fuzzy logic.

(OR)

15. Explain the membership value assignments.
 1. i) Intuition ii) Inference iii) Rank ordering iv) Genetic Algorithm.

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IV B.Tech - II Semester –End Examinations (Regular/Suppl.) April - 2017**NEURAL NETWORKS AND FUZZY LOGIC**

(Electrical & Electronics Engineering)

Duration: 3 Hrs

Max Marks: 70M

Section – A

Answer **All** the following questions

Marks: 5Qx4M = 20M

1. Explain Mcculloch – Pitts model.
2. What is learning rule? Describe Widrow-Hoff learning rule.
3. Explain multilayer feed forward model of ANN.
4. Explain about HEBBIAN learning.
5. Write short note on Fuzzy versus Crisp

Section – B

Answer any **FIVE** questions choosing at least one from each Unit

Marks: 5Qx10M = 50M

6. a) Explain the organization of brain in details.
b) Compare artificial and biological neuron networks.
7. Use the training data set to compute the synaptic weights of the neuron assumed to have single hidden layer.
8. Explain differences between single layer and multilayer feed forward network.
9. State and explain Kolmogorov theorem.
10. Explain the concepts of
 - i. Associative matrix and rules
 - ii. Hamming Distance
 - iii. Linear Associator.
11. a) State and prove BAM stability theorem.
b) Different types of BAM network.
12. Explain the properties and operation of following in details
 - i. Fuzzy Sets
 - ii. Membership Function.
13. Write Short notes on
 - i. Fuzzification
 - ii. Defuzzification
 - iii. Rules based on Fuzzification.

BR-14

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IV B.Tech - II Semester - I Mid Term Examinations
(R14CSE1144) NEURAL NETWORKS AND FUZZY LOGIC
(Electrical & Electronics Engineering)

D4

Duration: 90Mins

Date: 01.02.2018 FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5x1 = 5M

1. Using MC-Culloch pitts model implement the following logic functions i) Ex-OR gate ii) Ex-NOR gate
2. Write short notes on Learning Strategy
3. Draw the block diagram of a pattern classifier
4. What are the advantages of perceptron model?
5. What is Hebbian learning

Section – B

Answer any FOUR questions

Marks: 4x5 = 20M

6. Compare and contrast the difference between biological neuron networks and artificial neuron networks.
7. Compare and contrast supervised and unsupervised learning strategies.
8. Draw a single layer network with continuous perceptions..
9. Write single discrete perception training algorithm (SDPTA)..
10. Suggest and write about activation model, learning method for solving non-linear activation problems.
11. Describe the memory based learning in detail ***

BR-14

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
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IV B.Tech - II Semester - II Mid Term Examinations
(R14CSE1144) NEURAL NETWORKS AND FUZZY LOGIC
(Electrical & Electronics Engineering)

D4

Duration: 90Mins

Date: 16.04.2019 FN FN

Max Marks: 25M

Section – A

Answer All the questions

Marks: 5Qx1M = 5M

1. Define the hamming distance.
 2. Define Associative matrix.
 3. Describe the architecture of BAM?
 4. Recall the algorithm in Bidirectional associative memory.
- Write the importance of fuzzy logic control in various fields

Section – B

Answer any FOUR questions

Marks: 4Qx5M = 20M

6. Describe in detail memory-based learning algorithms.
7. Explain in detail discrete Hopfield network
8. Explicate the pattern of Cell splitting and types of Cell splitting.
9. State and prove the BAM stability theorem.
10. Draw a block diagram of a possible fuzzy logic control systems. Explain about each Block.
11. Write in detail about the block flow diagram of a classical feedback control system.

Duration: 90Mins**Dt: 14.02.2020 FN****Max Marks: 25M****Section – A****Answer ALL the questions****Marks: 5Qx1M = 5M**

1. List the applications of artificial neural network.
2. Write the organization of the brain in detail
3. State the perceptron convergence theorem.
4. State and prove Kolmogorov's theorem.
5. What is Hebbian learning

Section – B**Answer any FOUR questions****Marks: 4Qx5M = 20M**

6. Illustrate the biological neuron. Compare this with the artificial neuron model.
 7. Describe briefly about Hodgkin-Huxley neuron model.
 8. Evaluate the single discrete perception training algorithm (SDPTA).
 9. What is back propagation? Derive its learning algorithm with a schematic two layer Feed forward neural network
 10. Describe in detail memory-based learning algorithms.
 11. Explain in detail discrete Hopfield network
-