JAIDEV EDUCATION SOCIETY'S
J D COLLEGE OF ENGINEERING AND MANAGEMENT
KATOL ROAD, NAGPUR
SESSION 2020-21
SEMESTER I
Remedial Classes time table (W-20, S-20)

Note : Make up was not there due to covid 19, all are pramoted.

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

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Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in

An Autonomous Institute, with NAAC "A" Grade

Affiliated to DBATU, RTMNU

Department of Civil Engineering

"Building Better Development"

Session : 2020-21 (Odd Sem)

VISION	MISSION
To shape professional Leaders of Global Standards in Civil Engineering.	**1. To provide quality Education and Excellent Learning Environment for the overall development of students.** **2. Making sustainable efforts for integrating academics with industry.**

Date: 21/11/2020

Notice

The Student of 3rd semester are hereby informed that Remedial classes are scheduled to commence from 23/11/2020 to 28/11/2020. These sessions aim to provide additional support and assistance to enhance your understanding of course materials. Please make sure to attend these classes promptly to make the most out of this opportunity. Your participation is crucial for your academic success.

Remedial Classes Time Table

Year/Sem- II Year/III Sem

Date	Day	Time	Subject
23/11/2020	Monday	4.00 pm to 5.00 pm	Civil Engineering - Societal & Global Impact
24/11/2020	Tuesday	4.00 pm to 5.00 pm	Engineering Mathematics III
25/11/2020	Wednesday	4.00 pm to 5.00 pm	Building Drawing and Drafting
26/11/2020	Thursday	4.00 pm to 5.00 pm	Mechanics of Rigid bodies
27/11/2020	Friday	4.00 pm to 5.00 pm	Energy Science and Engineering
28/11/2020	Saturday	4.00 pm to 5.00 pm	Basic Geology and Geotechnical Engineering

Time Table Incharge **Academic Incharge** **HOD, (Civil)**

Principal
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Nagpur-441501

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Session : 2020-21 (Even Sem)

VISION	MISSION
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Date: 22/06/2021

Notice

The Student of 4th semester are hereby informed that Remedial classes are scheduled to commence from 23/06/2021 to 29/06/2021. These sessions aim to provide additional support and assistance to enhance your understanding of course materials. Please make sure to attend these classes promptly to make the most out of this opportunity. Your participation is crucial for your academic success.

Remedial Classes Time Table

Year/Sem- II Year/IV Sem

Date	Day	Time	Subject
23/06/2021	Wednesday	4.00 pm to 5.00 pm	Life Science
24/06/2021	Thursday	4.00 pm to 5.00 pm	Hydrology & Water Resource Engineering
25/06/2021	Friday	4.00 pm to 5.00 pm	Concrete Technology & Design of RCC Building Elements
26/06/2021	Saturday	4.00 pm to 5.00 pm	Solid Mechanics
28/06/2021	Monday	4.00 pm to 5.00 pm	Surveying and Geomatics
29/06/2021	Tuesday	4.00 pm to 5.00 pm	Materials, Testing & Evaluation

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Date: 21/11/2020

Notice

The Student of 5th semester are hereby informed that Remedial classes are scheduled to commence from 23/11/2020 to 28/11/2020. These sessions aim to provide additional support and assistance to enhance your understanding of course materials. Please make sure to attend these classes promptly to make the most out of this opportunity. Your participation is crucial for your academic success.

Remedial Classes Time Table

Year/Sem- III Year/V Sem

Date	Day	Time	Subject
23/11/2020	Monday	4.00 pm to 5.00 pm	Design of Steel Structures
24/11/2020	Tuesday	4.00 pm to 5.00 pm	Structural Mechanics-II
25/11/2020	Wednesday	4.00 pm to 5.00 pm	Soil Mechanics
26/11/2020	Thursday	4.00 pm to 5.00 pm	Environmental Engineering
27/11/2020	Friday	4.00 pm to 5.00 pm	Transportation Engineering
28/11/2020	Saturday	4.00 pm to 5.00 pm	Elective II

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Session : 2020-21 (Even Sem)

VISION	MISSION
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Date: 22/06/2021

Notice

The Student of 6th semester are hereby informed that Remedial classes are scheduled to commence from 23/06/2021 to 29/06/2021. These sessions aim to provide additional support and assistance to enhance your understanding of course materials. Please make sure to attend these classes promptly to make the most out of this opportunity. Your participation is crucial for your academic success.

Remedial Classes Time Table

Year/Sem- III Year/VI Sem

Date	Day	Time	Subject
23/06/2021	Wednesday	4.00 pm to 5.00 pm	Design of Concrete Structures I
24/06/2021	Thursday	4.00 pm to 5.00 pm	Foundation Engineering
25/06/2021	Friday	4.00 pm to 5.00 pm	Concrete Technology
26/06/2021	Saturday	4.00 pm to 5.00 pm	Project Management
28/06/2021	Monday	4.00 pm to 5.00 pm	Elective III
29/06/2021	Tuesday	4.00 pm to 5.00 pm	Building Planning and Design

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Department of Computer Science & Engineering
"A Place to Learn, A Chance to Grow"
Session: 2020-21

VISION	MISSION
To be recognized for excellent engineering, developing global leaders both in educational and research in the domain of computer science and wireless engineering.	1. To create self-learning environment by facilitating leadership qualities, team spirit and ethical responsibilities. 2. To improve department-industry collaboration, interaction with professional society through technical knowledge and internship program. 3. To promote research and development with current techniques through well qualified resources in the area of computer science and wireless engineering.

REMEDIAL CLASSES NOTICE

Date: 16/11/2020

All the students of B. Tech III Semester (Computer Science & Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the Class test and MSE.

Classes will commence from 19/11/2020 to 30/11/2020 as per the following schedule.

Day/Time	Time	Subject Name
Monday	4.00 Pm to 5.00 Pm	OB
Tuesday	4.00 Pm to 5.00 Pm	DSA
Wednesday	4.00 Pm to 5.00 Pm	M-III
Thursday	4.00 Pm to 5.00 Pm	PPS
Friday	4.00 Pm to 5.00 Pm	OS
Saturday	4.00 Pm to 5.00 Pm	UHR

Prof. A. P. Nanotkar
Timetable In-charge

Prof. Milind Tote
Academic Incharge

Prof. Supriya Sawwashere
HOD, CSE
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Session: 2020-21

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REMEDIAL CLASSES NOTICE

Date: 16/11/2020

All the students of B. Tech V Semester (Computer Science & Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the Class test and MSE.

Classes will commence from 19/11/2020 to 30/11/2020 as per the following schedule.

Day/Time	Time	Subject Name
Monday	4.00 Pm to 5.00 Pm	DBMS
Tuesday	4.00 Pm to 5.00 Pm	BC
Wednesday	4.00 Pm to 5.00 Pm	DBMS
Thursday	4.00 Pm to 5.00 Pm	BC
Friday	4.00 Pm to 5.00 Pm	DBMS
Saturday	4.00 Pm to 5.00 Pm	BC

Prof. A. P. Nanotkar
Timetable In-charge

Prof. Milind Tote
Academic Incharge

Prof. Supriya Sawwashere
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VISION	MISSION
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REMEDIAL CLASSES NOTICE

Date: 15/06/2021

All the students of B. Tech IV Semester (Computer Science & Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the Class test and MSE.

Classes will commence from 21/06/2021 to 02/07/2021 as per the following schedule.

Day/Time	Time	Subject Name
Monday	4.00 Pm to 5.00 Pm	CAO
Tuesday	4.00 Pm to 5.00 Pm	JP
Wednesday	4.00 Pm to 5.00 Pm	DMGT
Thursday	4.00 Pm to 5.00 Pm	FLAT
Friday	4.00 Pm to 5.00 Pm	CN
Saturday	4.00 Pm to 5.00 Pm	DBMS

Prof. A. P. Nanotkar
Timetable In-charge

Prof. Milind Tote
Academic Incharge

Prof. Supriya Sawwashere
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VISION	MISSION
To be recognized for excellent engineering, developing global leaders both in educational and research in the domain of computer science and wireless engineering.	1. To create self-learning environment by facilitating leadership qualities, team spirit and ethical responsibilities. 2. To improve department-industry collaboration, interaction with professional society through technical knowledge and internship program. 3. To promote research and development with current techniques through well qualified resources in the area of computer science and wireless engineering.

REMEDIAL CLASSES NOTICE

Date: 15/06/2021

All the students of B. Tech VI Semester (Computer Science & Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the Class test and MSE.
Classes will commence from 21/06/2021 to 02/07/2021 as per the following schedule.

Day/Time	Time	Subject Name
Monday	4.00 Pm to 5.00 Pm	CN
Tuesday	4.00 Pm to 5.00 Pm	CP-II
Wednesday	4.00 Pm to 5.00 Pm	CD
Thursday	4.00 Pm to 5.00 Pm	AI
Friday	4.00 Pm to 5.00 Pm	IOT
Saturday	4.00 Pm to 5.00 Pm	DE

Prof. A. P. Nanotkar
Timetable In-charge

Prof. Milind Tote
Academic Incharge

Prof. Supriya Sawwashere
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Department Of Electrical Engineering
"Igniting minds to illuminate the world"
2020-21 (Odd Sem)

VISION	MISSION
"To develop competent and committed Electrical Engineers to serve the society"	1. To impart quality education in the field of Electrical Engineering. 2. To be excellent learning centre through research and industry interaction.

Date- 10/11/2020

Remedial Classes Notice

All the students of B.Tech 3rd Sem are hereby informed that the department is going to arrange remedial classes for students who has scored less than 40 marks in aggregate from class test and MSE. Classes schedule is given below.

Sr.No	Day	Time	Subject
1	11/11/2020	4pm to 5 pm	NA
2	12/11/2020	4pm to 5 pm	EMI
3	13/11/2020	4pm to 5 pm	EM-I
4	14/11/2020	4pm to 5 pm	FEE
5	16/11/2020	4pm to 5 pm	Economics

Time Table Incharge Academic Incharge HOD

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Department Of Electrical Engineering
"Igniting minds to illuminate the world"
2020-21 (Odd Sem)

VISION	MISSION
"To develop competent and committed Electrical Engineers to serve the society"	1. To impart quality education in the field of Electrical Engineering. 2. To be excellent learning centre through research and industry interaction.

Date- 10/11/2020

Remedial Classes Notice

All the students of B.Tech 5th Sem are hereby informed that the department is going to arrange remedial classes for students who has scored less than 40 marks in aggregate from class test and MSE. Classes schedule is given below.

Sr.No	Day	Time	Subject
1	11/11/2020	4pm to 5 pm	Elective I
2	12/11/2020	4pm to 5 pm	Elective II
3	13/11/2020	4pm to 5 pm	Control System-I
4	14/11/2020	4pm to 5 pm	Power Electronics
5	16/11/2020	4pm to 5 pm	Power System II

Time Table Incharge Academic Incharge HOD

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Department Of Electrical Engineering
"Igniting minds to illuminate the world"
2020-2021 (Even Sem)

VISION	MISSION
"To develop competent and committed Electrical Engineers to serve the society"	1. To impart quality education in the field of Electrical Engineering. 2. To be excellent learning centre through research and industry interaction.

Date- 25/06/2021

Remedial Classes Notice

All the students of B.Tech 4th Sem are hereby informed that the department is going to arrange remedial classes for students who has scored less than 40 marks in aggregate from class test and MSE. Classes schedule is given below.

Sr.No	Day	Time	Subject
1	26/06/2021	4pm to 5 pm	EM-II
2	28/06/2021	4pm to 5 pm	PSP
3	29/06/2021	4pm to 5 pm	PS-I
4	30/06/2021	4pm to 5 pm	EDC
5	1/07/2021	4pm to 5 pm	NMP

Time Table Incharge Academic Incharge HOD

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Date- 25/06/2021

Remedial Classes Notice

All the students of B.Tech 6th Sem are hereby informed that the department is going to arrange remedial classes for students who has scored less than 40 marks in aggregate from class test and MSE. Classes schedule is given below.

Sr.No	Day	Time	Subject
1	26/06/2021	4pm to 5 pm	MPMC
2	28/06/2021	4pm to 5 pm	ACS
3	29/06/2021	4pm to 5 pm	Elective –III
4	30/06/2021	4pm to 5 pm	Elective –IV

Time Table Incharge Academic Incharge HOD

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Department of Electronics Engineering
"Rectifying Ideas, Amplifying Knowledge"
2020-21 (Odd Sem)

VISION	MISSION
"To be a Department providing high quality & globally competent knowledge of concurrent technologies in the field of Electronics and Telecommunication."	1. To provide quality teaching learning process through well-developed educational environment and dedicated faculties. 2. To produce competent technocrats of high standards satisfying the needs of all stakeholders.

REMEDIAL CLASSES NOTICE

w.e.f:23/11/20

All the students of B.Tech 3rd Semester (Electronics & Telecommunication Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the class test and MSE. Classes will commence from 23/11/20 to 28/11/20 as per the following schedule.

S.N	Day	Time	Subject
1	Monday	4.00 Pm to 5.00 Pm	EDC-I
2	Tuesday	4.00 Pm to 5.00 Pm	ACS
3	Wednesday	4.00 Pm to 5.00 Pm	DCM
4	Thursday	4.00 Pm to 5.00 Pm	ICA
5	Friday	4.00 Pm to 5.00 Pm	ICM
6	Saturday	4.00 Pm to 5.00 Pm	EDC-1

Prof. Firoz Akhtar
Time-Table Incharge

Prof. A.K.Ikhar
Academic Incharge

Dr. P. R. Kshirsagar
HOD, ETC

HOD, Dept. of EN/ETC
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REMEDIAL CLASSES NOTICE

w.e.f:23/11/20

All the students of B.Tech 5th Semester (Electronics & Telecommunication Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the class test and MSE. Classes will commence from 23/11/20 to 28/11/20 as per the following schedule.

S.N	Day	Time	Subject
1	Monday	4.00 Pm to 5.00 Pm	DSA
2	Tuesday	4.00 Pm to 5.00 Pm	CA
3	Wednesday	4.00 Pm to 5.00 Pm	CSE
4	Thursday	4.00 Pm to 5.00 Pm	EMF
5	Friday	4.00 Pm to 5.00 Pm	MCMP
6	Saturday	4.00 Pm to 5.00 Pm	DSP

Prof. Firoz Akhtar
Time-Table Incharge

Prof. A.K.Ikhar
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REMEDIAL CLASSES NOTICE

w.e.f:23/11/20

All the students of B.Tech 7th Semester (Electronics & Telecommunication Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the class test and MSE. Classes will commence from 23/11/20 to 28/11/20 as per the following schedule.

S.N	Day	Time	Subject
1	Monday	4.00 Pm to 5.00 Pm	AI
2	Tuesday	4.00 Pm to 5.00 Pm	WSN
3	Wednesday	4.00 Pm to 5.00 Pm	TV
4	Thursday	4.00 Pm to 5.00 Pm	ES
5	Friday	4.00 Pm to 5.00 Pm	MECHATRONICS/ESC
6	Saturday	4.00 Pm to 5.00 Pm	DIP

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Time-Table Incharge

Prof. A.K.Ikhar
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REMEDIAL CLASSES NOTICE

w.e.f:26/06/21

All the students of B.Tech 4th Semester (Electronics & Telecommunication Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the class test and MSE. Classes will commence from 26/06/21 to 02/07/21 as per the following schedule.

S.N	Day	Time	Subject
1	Saturday	4.00 Pm to 5.00 Pm	PP
2	Monday	4.00 Pm to 5.00 Pm	PDENM
3	Tuesday	4.00 Pm to 5.00 Pm	EMI
4	Wednesday	4.00 Pm to 5.00 Pm	SS
5	Thursday	4.00 Pm to 5.00 Pm	EDCII
6	Friday	4.00 Pm to 5.00 Pm	EMF

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Education to Eternity

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REMEDIAL CLASSES NOTICE w.e.f:26/06/21

All the students of B.Tech 6th Semester (Electronics & Telecommunication Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the class test and MSE. Classes will commence from 26/06/21 to 02/07/21 as per the following schedule.

S.N	Day	Time	Subject
1	Saturday	4.00 Pm to 5.00 Pm	PE
2	Monday	4.00 Pm to 5.00 Pm	AWP
3	Tuesday	4.00 Pm to 5.00 Pm	DIP
4	Wednesday	4.00 Pm to 5.00 Pm	CNCC
5	Thursday	4.00 Pm to 5.00 Pm	PP
6	Friday	4.00 Pm to 5.00 Pm	PE

Prof. Firoz Akhtar
Time-Table Incharge

Prof. A.K.Ikhar
Academic Incharge

Dr. P. R. Kshirsagar
HOD, ETC

HOD, Dept. of EN/ETC
JD College of Engineering & Management, Nagpur

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

J D COLLEGE OF ENGINEERING & MANAGEMENT NAGPUR

JAIDEV EDUCATION SOCIETY'S
J D COLLEGE OF ENGINEERING AND MANAGEMENT
KATOL ROAD, NAGPUR
Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in
An Autonomous Institute, with NAAC "A" Grade
Department of Electronics Engineering
"Rectifying Ideas, Amplifying Knowledge"
2020-21 (Even Sem)

VISION	MISSION
"To be a Department providing high quality & globally competent knowledge of concurrent technologies in the field of Electronics and Telecommunication."	5. To provide quality teaching learning process through well-developed educational environment and dedicated faculties. 6. To produce competent technocrats of high standards satisfying the needs of all stakeholders.

REMEDIAL CLASSES NOTICEw.e.f:26/06/21

All the students of B.Tech 8th Semester (Electronics & Telecommunication Engineering) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the class test and MSE. Classes will commence from 26/06/21 to 02/07/21 as per the following schedule.

S.N	Day	Time	Subject
1	Saturday	4.00 Pm to 5.00 Pm	CNS
2	Monday	4.00 Pm to 5.00 Pm	IAC
3	Tuesday	4.00 Pm to 5.00 Pm	BSP
4	Wednesday	4.00 Pm to 5.00 Pm	DID
5	Thursday	4.00 Pm to 5.00 Pm	CVIP
6	Friday	4.00 Pm to 5.00 Pm	IIOT

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Time-Table Incharge

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KATOL ROAD, NAGPUR
Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in
(An Autonomous Institute, with NAAC "A" Grade)
Department of Information Technology
"A Place to Learn, A Chance to Grow"
Session: 2020-21

VISION	MISSION
To be recognized for excellent engineering, developing global leaders both in educational and research in the domain of computer science and wireless engineering.	1. To create self-learning environment by facilitating leadership qualities, team spirit and ethical responsibilities. 2. To improve department-industry collaboration, interaction with professional society through technical knowledge and internship program. 3. To promote research and development with current techniques through well qualified resources in the area of computer science and wireless engineering.

REMEDIAL CLASSES NOTICE

Date: 16/11/2020

All the students of B. Tech III Semester (Information Technology) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the Class test and MSE.

Classes will commence from 19/11/2020 to 30/11/2020 as per the following schedule.

Day/Time	Time	Subject Name
Monday	4.00 Pm to 5.00 Pm	OB
Tuesday	4.00 Pm to 5.00 Pm	DEFM
Wednesday	4.00 Pm to 5.00 Pm	M-III
Thursday	4.00 Pm to 5.00 Pm	CAO
Friday	4.00 Pm to 5.00 Pm	CG
Saturday	4.00 Pm to 5.00 Pm	UHR

Prof. A. P. Nanotkar
Timetable In-charge

Prof. Milind Tote
Academic Incharge

HOD IT
H.O.D.
Department of CSE-IT
JDCOEM, Nagpur

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

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Department of Information Technology
"A Place to Learn, A Chance to Grow"
Session: 2020-21

VISION	MISSION
To be recognized for excellent engineering, developing global leaders both in educational and research in the domain of computer science and wireless engineering.	1. To create self-learning environment by facilitating leadership qualities, team spirit and ethical responsibilities. 2. To improve department-industry collaboration, interaction with professional society through technical knowledge and internship program. 3. To promote research and development with current techniques through well qualified resources in the area of computer science and wireless engineering.

REMEDIAL CLASSES NOTICE

Date: 16/11/2020

All the students of B. Tech V Semester (Information Technology) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the Class test and MSE.

Classes will commence from 19/11/2020 to 30/11/2020 as per the following schedule.

Day/Time	Time	Subject Name
Monday	4.00 Pm to 5.00 Pm	DBMS
Tuesday	4.00 Pm to 5.00 Pm	DAA
Wednesday	4.00 Pm to 5.00 Pm	SE
Thursday	4.00 Pm to 5.00 Pm	ELECTIVE-1
Friday	4.00 Pm to 5.00 Pm	DBMS
Saturday	4.00 Pm to 5.00 Pm	DAA

Prof. A. P. Nanotkar
Timetable In-charge

Prof. Milind Tote
Academic Incharge

HOD IT
H.O.D.
Department of CSE-IT
JDCOEM, Nagpur

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

An Autonomous Institute, with NAAC "A" Grade

Department of Information Technology

"A Place to Learn, A Chance to Grow"

Session 2020-21 (EVEN SEM)

REMEDIAL CLASSES NOTICE

Date: 16/06/2021

All the students of B. Tech IV Semester (Information Technology) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the Class test and MSE.

Classes will commence from 26/06/2021 to 02/07/2021 as per the following schedule.

Day/Time	Time	Subject Name
Monday	4.00 Pm to 5.00 Pm	TOC
Tuesday	4.00 Pm to 5.00 Pm	JP
Wednesday	4.00 Pm to 5.00 Pm	CA
Thursday	4.00 Pm to 5.00 Pm	CN
Friday	4.00 Pm to 5.00 Pm	DBMS
Saturday	4.00 Pm to 5.00 Pm	DMGT

Prof. A. P. Nanotkar
Timetable In-charge

Prof. Milind Tote
Academic Incharge

HOD IT
H.O.D.
Department of CSE-IT
JDCOEM, Nagpur

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An Autonomous Institute, with NAAC "A" Grade

Department of Information Technology

"A Place to Learn, A Chance to Grow"

Session 2020-21 (EVEN SEM)

REMEDIAL CLASSES NOTICE

Date: 16/11/2020

All the students of B. Tech VI Semester (Information Technology) are hereby informed that the department is going to arrange remedial classes for students who have scored less than 40 Marks in aggregate from the Class test and MSE.

Classes will commence from 26/06/2021 to 02/07/2021 as per the following schedule.

Day/Time	Time	Subject Name
Monday	4.00 Pm to 5.00 Pm	OS
Tuesday	4.00 Pm to 5.00 Pm	CC
Wednesday	4.00 Pm to 5.00 Pm	OOPS & WE
Thursday	4.00 Pm to 5.00 Pm	Elective 2
Friday	4.00 Pm to 5.00 Pm	Stream Elective 1
Saturday	4.00 Pm to 5.00 Pm	OS

Prof. A. P. Nanotkar
Timetable In-charge

Prof. Milind Tote
Academic Incharge

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H.O.D.
Department of CSE-IT
JDCOEM, Nagpur

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2020-21(ODD SEM)

VISION	MISSION
"To be a centre of excellence of learning and research in Mechanical Engineering."	1. To provide high quality, innovative and research environment in Mechanical Engineering. 2. To impart soft skills and hard skills to achieve the institutional vision.

w.e.f:11/11/2020

REMEDIAL CLASSES NOTICE

All The students of B. TECH 3rd semester (Mechanical Engineering) are hereby informed that the Department is going to arrange remedial classes for students who have scored less than 40 marks in aggregate from the class test and MSE. Classes will commence form 11/11/2020 to 17/11/2020 as per the following schedule.

Sr. No	Day	Time	Subject
1	Monday	04:00 pm to 05:00 pm	M-III
2	Tuesday	04:00 pm to 05:00 pm	TOM-I
3	Wednesday	04:00 pm to 05:00 pm	ET
4	Friday	04:00 pm to 05:00 pm	M-III
5	Saturday	04:00 pm to 05:00 pm	TOM-I
6	Monday	04:00 pm to 05:00 pm	ET

Time Table In-charge
DOME, JDCOEM

Academic In-Charge
DOME, JDCOEM

Head of Department
Mechanical Engineering

HOD
DOME, JDCOEM

Department of Mech. Engg. JDCOEM

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

VISION	MISSION
"To be a centre of excellence of learning and research in Mechanical Engineering."	1. To provide high quality, innovative and research environment in Mechanical Engineering. 2. To impart soft skills and hard skills to achieve the institutional vision.

w.e.f:11/11/2020

REMEDIAL CLASSES NOTICE

All The students of B. TECH 5th semester (Mechanical Engineering) are hereby informed that the Department is going to arrange remedial classes for students who have scored less than 40 marks in aggregate from the class test and MSE. Classes will commence form 11/11/2020 to 17/11/2020 as per the following schedule.

Sr. No	Day	Time	Subject
1	Monday	04:00 pm to 05:00 pm	HT
2	Tuesday	04:00 pm to 05:00 pm	TOM II
3	Wednesday	04:00 pm to 05:00 pm	HT
4	Friday	04:00 pm to 05:00 pm	TOM II
5	Saturday	04:00 pm to 05:00 pm	HT
6	Monday	04:00 pm to 05:00 pm	TOM II

Time Table In-charge
DOME, JDCOEM

Academic In-Charge
DOME, JDCOEM

Head of Department
Mechanical Engineering

HOD
DOME, JDCOEM

Department of Mech. Engg. JDCOEM

Principal
J D College of Engineering & Management
Khandala, Katol Road
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2020-21(EVEN SEM)

VISION	MISSION
"To be a centre of excellence of learning and research in Mechanical Engineering."	1. To provide high quality, innovative and research environment in Mechanical Engineering. 2. To impart soft skills and hard skills to achieve the institutional vision.

w.e.f:26/06/2021

REMEDIAL CLASSES NOTICE

All The students of B. TECH 4th semester (Mechanical Engineering) are hereby informed that the Department is going to arrange remedial classes for students who have scored less than 40 marks in aggregate from the class test and MSE. Classes will commence form 26/06/2021 to 02/07/2021 as per the following schedule.

Sr. No	Day	Time	Subject
1	Monday	04:00 pm to 05:00 pm	SOM
2	Tuesday	04:00 pm to 05:00 pm	FM
3	Wednesday	04:00 pm to 05:00 pm	ME-II
4	Friday	04:00 pm to 05:00 pm	SOM
5	Saturday	04:00 pm to 05:00 pm	FM
6	Monday	04:00 pm to 05:00 pm	ME-II

Time Table In-charge
DOME, JDCOEM

Academic In-Charge
DOME, JDCOEM

Head of Department
Mechanical Engineering

HOD
DOME, JDCOEM

Department of Mech. Engg. JDCOEM

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2020-21(EVEN SEM)

VISION	MISSION
"To be a centre of excellence of learning and research in Mechanical Engineering."	1. To provide high quality, innovative and research environment in Mechanical Engineering. 2. To impart soft skills and hard skills to achieve the institutional vision.

w.e.f:26/06/2021

REMEDIAL CLASSES NOTICE

All The students of B. TECH 4th semester (Mechanical Engineering) are hereby informed that the Department is going to arrange remedial classes for students who have scored less than 40 marks in aggregate from the class test and MSE. Classes will commence form 26/06/2021 to 02/07/2021 as per the following schedule.

Sr. No	Day	Time	Subject
1	Monday	04:00 pm to 05:00 pm	DOM
2	Tuesday	04:00 pm to 05:00 pm	OR
3	Wednesday	04:00 pm to 05:00 pm	AT
4	Friday	04:00 pm to 05:00 pm	DOM
5	Saturday	04:00 pm to 05:00 pm	OR
6	Monday	04:00 pm to 05:00 pm	AT

Time Table In-charge
DOME, JDCOEM

Academic In-Charge
DOME, JDCOEM

Head of Department
Mechanical Engineering

HOD
DOME, JDCOEM

Department of Mech. Engg.
JDCOEM

Principal
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Khandala, Katol Road
Nagpur-441501

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J D COLLEGE OF ENGINEERING AND MANAGEMENT
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Education to Eternity

VISION

To be a center of excellence imparting professional education satisfying societal and global needs.

MISSION

1. Transforming students into lifelong learners through, quality teaching, training and exposure to concurrent technologies.
2. Fostering conducive atmosphere for research and development through well-equipped laboratories and qualified personnel in collaboration with global organizations.

NOTICE

REMEDIAL CLASSES

ACADEMIC YEAR 2020-21

The students of **Semester-I** of the Department of Management are hereby informed to attend the remedial classes as per the below Time Table. The list of students who have to attend the remedial classes is attached herewith. Kindly refer the same.

Sr. No.	Date	Day	Name of Course	Timing
1	20/05/2021	Thursday	Financial Reporting, Statements and Analysis	09:30 am- 10:30 am
2	20/05/2021	Thursday	Financial Reporting, Statements and Analysis	10:30 am- 11:30 am
3	20/05/2021	Thursday	Managerial Economics	11:30 am- 12:20 pm
4	20/05/2021	Thursday	Business Research	01:00 pm- 02:00 pm
5	21/05/2021	Friday	Business Statistics and Analytics for Decision Making	09:30 am- 10:30 am
6	21/05/2021	Friday	Business Statistics and Analytics for Decision Making	10:30 am- 11:30 am
7	21/05/2021	Friday	Business Research	11:30 am- 12:20 pm
8	21/05/2021	Friday	Legal and Business Environment	01:00 pm- 02:00 pm

Time Table Incharge

Academic Coordinator

HOD- MBA

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

VISION	MISSION
To be a center of excellence imparting professional education satisfying societal and global needs.	1. Transforming students into lifelong learners through, quality teaching, training and exposure to concurrent technologies. 2. Fostering conducive atmosphere for research and development through well-equipped laboratories and qualified personnel in collaboration with global organizations.

CIRCULAR

REMEDIAL CLASSES

ACADEMIC YEAR 2020-21

All the faculty members of the Department of Management Studies are hereby requested to engage the remedial classes as per the below Time Table. The Attendance record of the remedial classes must be maintained by respective course in charge.

Sr. No.	Date	Day	Name of Course	Timing
1	20/05/2021	Thursday	Financial Reporting, Statements and Analysis	09:30 am- 10:30 am
2	20/05/2021	Thursday	Financial Reporting, Statements and Analysis	10:30 am- 11:30 am
3	20/05/2021	Thursday	Managerial Economics	11:30 am- 12:20 pm
4	20/05/2021	Thursday	Business Research	01:00 pm- 02:00 pm
5	21/05/2021	Friday	Business Statistics and Analytics for Decision Making	09:30 am- 10:30 am
6	21/05/2021	Friday	Business Statistics and Analytics for Decision Making	10:30 am- 11:30 am
7	21/05/2021	Friday	Business Research	11:30 am- 12:20 pm
8	21/05/2021	Friday	Legal and Business Environment	01:00 pm- 02:00 pm

Time Table Incharge

Academic Coordinator

HOD- MBA

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

JAIDEV EDUCATION SOCIETY'S
J D COLLEGE OF ENGINEERING AND MANAGEMENT
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Education to Eternity

VISION	MISSION
To be a center of excellence imparting professional education satisfying societal and global needs.	1. Transforming students into lifelong learners through, quality teaching, training and exposure to concurrent technologies. 2. Fostering conducive atmosphere for research and development through well-equipped laboratories and qualified personnel in collaboration with global organizations.

NOTICE

Remedial Classes

REMEDIAL CLASSES

ACADEMIC YEAR 2020-21

The students of **Semester-II** of the Department of Management are hereby informed to attend the remedial classes as per the below Time Table. The list of students who have to attend the remedial classes is attached herewith. Kindly refer the same.

Sr. No.	Date	Day	Name of Course	Timing
1	30/09/2021	Thursday	Financial Management	09:30 am- 10:30 am
2	30/09/2021	Thursday	Financial Management	10:30 am- 11:30 am
3	30/09/2021	Thursday	Human Resource Management	11:30 am- 12:20 pm
4	30/09/2021	Thursday	Operations Management	01:00 pm- 02:00 pm
5	01/10/2021	Friday	Strategic Management	09:30 am- 10:30 am
6	01/10/2021	Friday	Marketing Management	10:30 am- 11:30 am
7	01/10/2021	Friday	Cost Accounting	11:30 am- 12:20 pm
8	01/10/2021	Friday	Cost Accounting	01:00 pm- 02:00 pm

Time Table Incharge

Academic Coordinator

HOD- MBA

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

VISION	MISSION
To be a center of excellence imparting professional education satisfying societal and global needs.	1. Transforming students into lifelong learners through, quality teaching, training and exposure to concurrent technologies. 2. Fostering conducive atmosphere for research and development through well-equipped laboratories and qualified personnel in collaboration with global organizations.

CIRCULAR

REMEDIAL CLASSES

ACADEMIC YEAR 2020-21

All the faculty members of the Department of Management Studies are hereby requested to engage the remedial classes as per the below Time Table. The Attendance record of the remedial classes must be maintained by respective course in charge.

Sr. No.	Date	Day	Name of Course	Timing
1	30/09/2021	Thursday	Financial Management	09:30 am- 10:30 am
2	30/09/2021	Thursday	Financial Management	10:30 am- 11:30 am
3	30/09/2021	Thursday	Human Resource Management	11:30 am- 12:20 pm
4	30/09/2021	Thursday	Operations Management	01:00 pm- 02:00 pm
5	01/10/2021	Friday	Strategic Management	09:30 am- 10:30 am
6	01/10/2021	Friday	Marketing Management	10:30 am- 11:30 am
7	01/10/2021	Friday	Cost Accounting	11:30 am- 12:20 pm
8	01/10/2021	Friday	Cost Accounting	01:00 pm- 02:00 pm

Time Table Incharge

Academic Coordinator

HOD- MBA

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

VISION	MISSION
"To be the Department providing strong human quotient thereby making our students top class professionals and entrepreneurs."	10. To provide the world class training for the students through continuous training modules. 11. To improve industry institute relationship. 12. To enhance students interest towards entrepreneurship and business strategies.

Super 40 Students (2020-21)

Training and Placement department in association with all departments of our college will form super-40 students groups.

The criteria for selection of Super-40 groups students are as follow:

Sr. No	Selection Process
1	60% Aggregate throughout SSC onward.
2	Aptitude Test
3	Group Discussion
4	Technical Interview
5	Personal Interview
6	Overall Performance in the department as suggested by HOD and senior faculty

On the basis of above criteria, we will form Super-40 group at college level

Sr. No	Name of the Student	Branch
1	Jayaesh Bawane	Civil
2	Harsh	Civil
3	Krushna Jadhav	Civil
4	Shruti Gulgulwar	Civil
5	Ayush Chukravarty	Civil
6	Pramod wanjari	Civil
7	Ankush	CSE
8	Nakul Gopal	CSE
9	Tejas Jiaswal	CSE
10	Asmita	CSE
11	Divya Pathak	cse
12	Harshal Bhoyar	CSE
13	Ayushi Agase	CSE
14	Abhsihek Barve	CSE
15	Gaurav Khsirsagar	CSE
16	Vaibhav Pandey	CSE
17	Aman Patil	CSE
18	Sakshi Mishra	CSE

Principal
J D College of Engineering & Management
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Education to Eternity

JAIDEV EDUCATION SOCIETY'S
J D COLLEGE OF ENGINEERING AND MANAGEMENT
KATOL ROAD, NAGPUR
An Autonomous Institute, with NAAC "A" Grade
Department of Training and Placement
2020-21

VISION	MISSION
"To be the Department providing strong human quotient thereby making our students top class professionals and entrepreneurs."	10. To provide the world class training for the students through continuous training modules. 11. To improve industry institute relationship. 12. To enhance students interest towards entrepreneurship and business strategies.

19	Madhulika	CSE
20	Pratiksha Singh	CSE
21	Sneha Pahirwar	CSE
22	Varsha Pandhare	CSE
23	Snehal Shende	CSE
24	Ashwini	CSE
25	Gaurav Hebad	CSE
26	Mayuri Jambhulkar	CSE
27	Prajwal	CSE
28	Dimple Bagde	CSE
29	Pranoti Sahare	CSE
30	Tanmay Rale	EE
31	Vikas Raghorte	EE
32	Shubham Nanadanwar	EE
33	Saurabh Jodh	EE
34	Suyog Debhe	EE
35	Sahil Ajmani	EE
36	Puja Nikhade	EE
37	Shubham Brahmne	EE
38	Bhuwaneshwari	EE
39	Pratip Mandal	IT
40	Kalyani Dhote	IT
41	Megha Dongre	IT
42	Aboli Padole	IT
43	Amit Ghodeshwar	Mechanical
44	Chaitnya Ghuse	Mechanical
45	Chetan Meher	Mechanical

Training & Placement Officer

Training and Placement Department
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

J D COLLEGE OF ENGINEERING & MANAGEMENT NAGPUR

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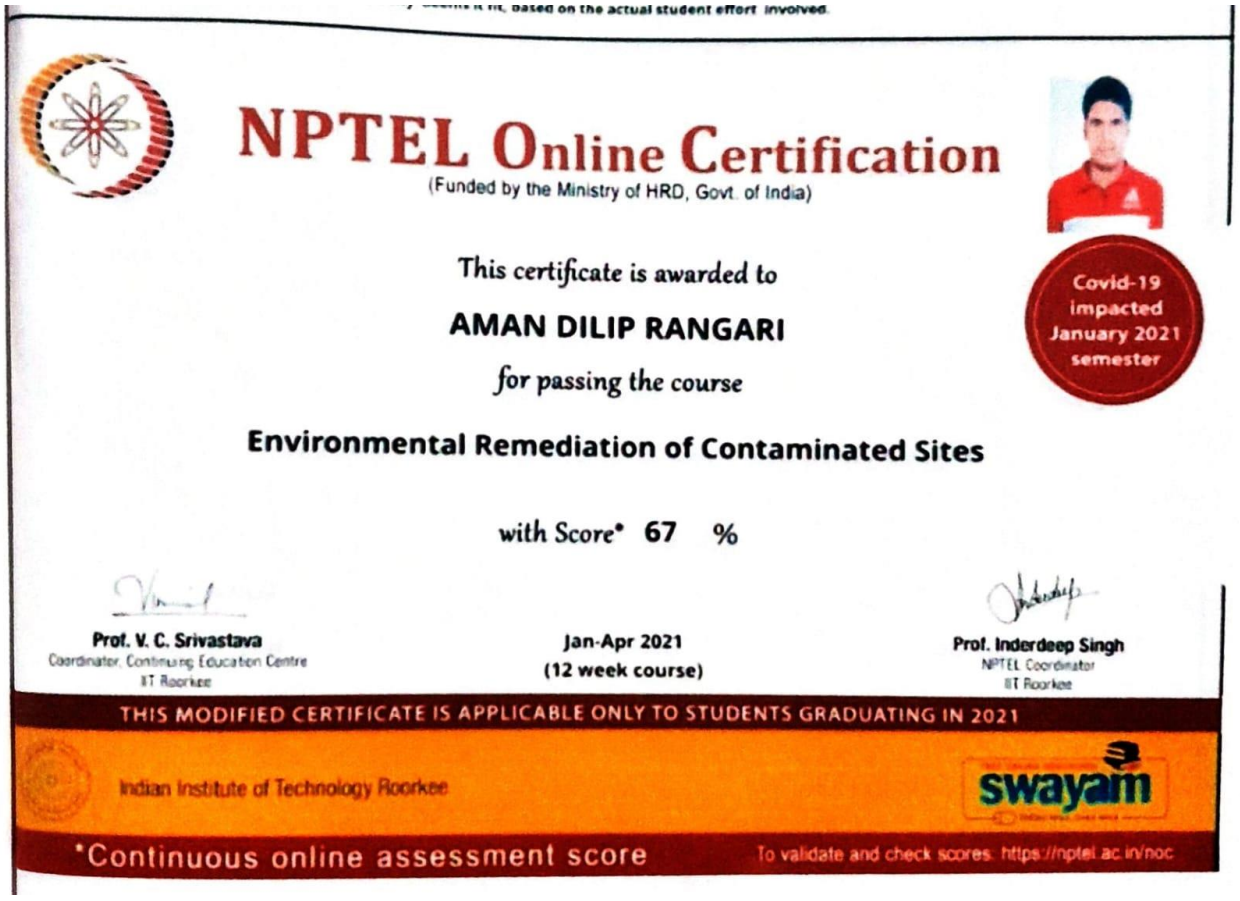
Affiliated to DBATU & RTMNU
Department of Civil Engineering
"Building Better Development"
Session 2020-21

VISION	MISSION
To be a well-known center for shaping professional leaders of Global Standards in Civil Engineering	• Provide quality education and excellent learning Environment for overall development of students. • Making Sustainable efforts for integrating academics with Industry.

CE Student NPTEL Certificate- 2020-21



CE - 2020-21

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

HOD, (CE)

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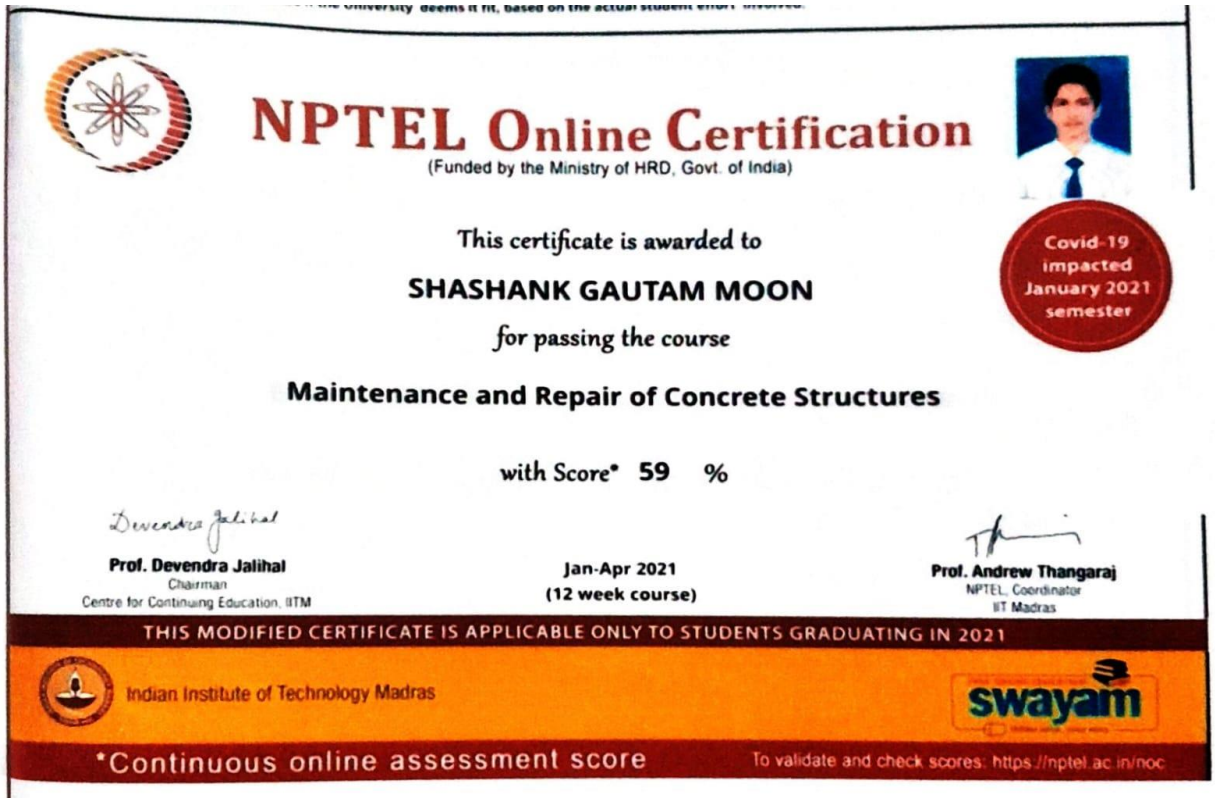
Department of Civil Engineering
"Building Better Development"
Session 2020-21

Education to Eternity

।।ज्ञानम् सर्वार्थ साधनम्।।

VISION	MISSION
To be a well-known center for shaping professional leaders of Global Standards in Civil Engineering	• Provide quality education and excellent learning Environment for overall development of students. • Making Sustainable efforts for integrating academics with Industry.

CE Student NPTEL Certificate- 2020-21



CE - 2020-21

HOD, (CE)

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

J D COLLEGE OF ENGINEERING & MANAGEMENT NAGPUR

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in

(An Autonomous Institute, with NAAC "A" Grade)

Department of Computer Science & Engineering

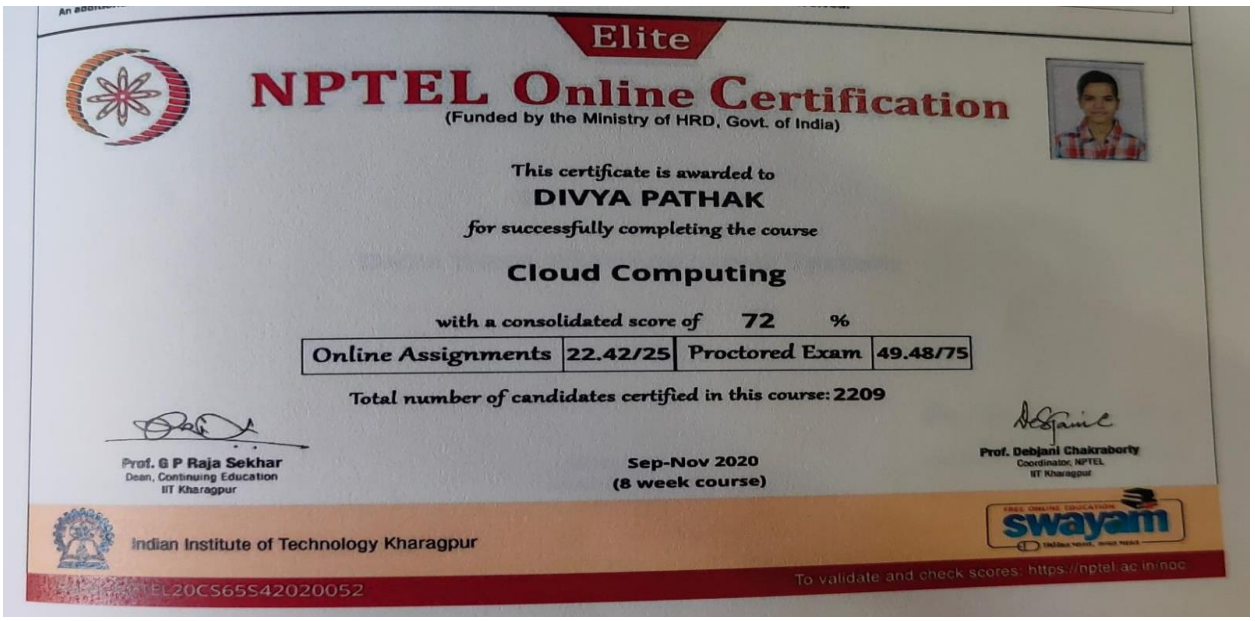
"A Place to Learn, A Chance to Grow"

Session: 2020-21

VISION	MISSION
To be recognized for excellent engineering, developing global leaders both in educational and research in the domain of computer science and wireless engineering.	1. To create self-learning environment by facilitating leadership qualities, team spirit and ethical responsibilities. 2. To improve department-industry collaboration, interaction with professional society through technical knowledge and internship program. 3. To promote research and development with current techniques through well qualified resources in the area of computer science and wireless engineering.

CSE Student NPTEL Certificate 2020-21

2020-21 CSE NPTEL Certificate



2020-21 CSE NPTEL Certificate

Prof. Supriya Sawwashere
HOD. CSE
HOD
Computer Science & Engineering
JDCOEM, Nagpur

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in

(An Autonomous Institute, with NAAC "A" Grade)

Affiliated to DBATU, RTMNU & MSBTE Mumbai

Department Of Electrical Engineering

"Igniting minds to illuminate the world"

2020-21

VISION	MISSION
"To develop competent and committed Electrical Engineers to serve the society"	1. To impart quality education in the field of Electrical Engineering. 2. To be excellent learning centre through research and industry interaction.

EE Student NPTEL Certificate 2020-21

NPTEL Certificate 2020-21 EE Department

H.O.D

PRINCIPAL

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

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(An Autonomous Institute, with NAAC "A" Grade)

Affiliated to DBATU, RTMNU & MSBTE Mumbai

Department Of Electrical Engineering

"Igniting minds to illuminate the world"

2020-21

VISION	MISSION
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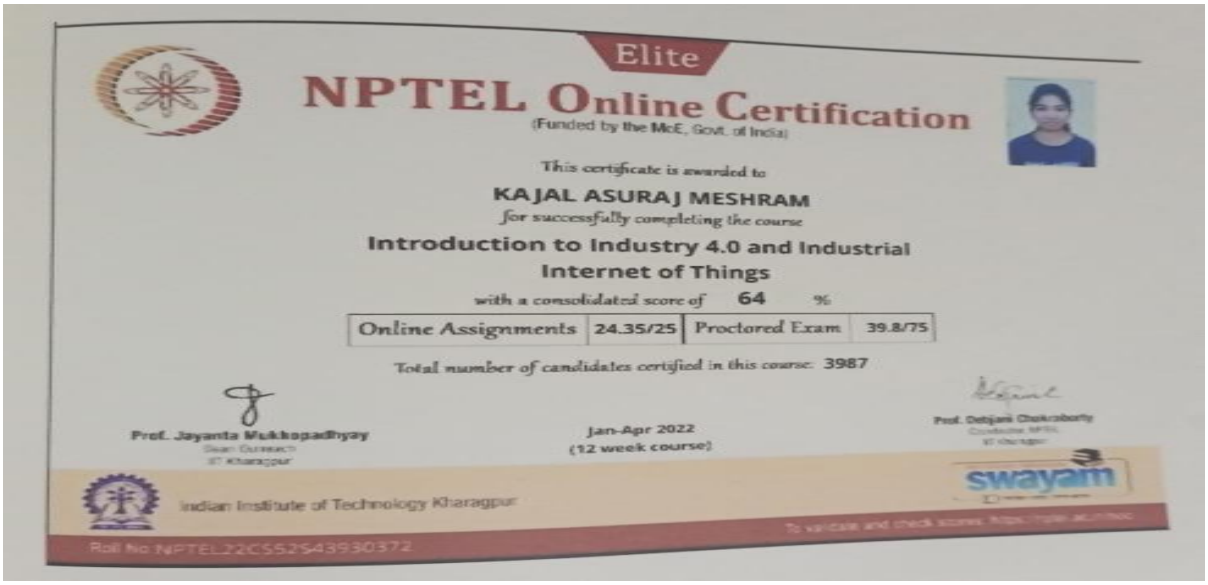
EE Student NPTEL Certificate 2020-21



NPTEL Certificate 2020-21 EE Department

H.O.D

PRINCIPAL

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in

An Autonomous Institute, with NAAC "A" Grade

Affiliated to DBATU & RTMNU

Department of Electronics and Telecommunication Engineering

"Rectifying Ideas, Amplifying Knowledge"

2020-21

VISION	MISSION
To be a Department providing high quality & globally competent knowledge of concurrent technologies in the field of Electronics and Telecommunication."	1. To provide quality teaching learning process through well-developed educational environment and dedicated faculties. 2. To produce competent technocrats of high standards satisfying the needs of all stakeholders.

ETC Student NPTEL Certificate 2020-21

2020 ETC NPTEL Certificate

2020 ETC NPTEL Certificate

HOD, Dept. of EN/ETC
JD College of Engineering
& Management, Nagpur

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere

Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in

An Autonomous Institute, with NAAC "A" Grade

Affiliated to DBATU, RTMNU & MSBTE Mumbai

Department of Information Technology

"Progress Beyond Excellence"

Session: 2020-21

VISION	MISSION
" To Produce Competent Professionals equipped with technical knowledge and commitment for satisfying the needs of society "	**1. To impart advanced knowledge with an inclination towards Research with well-equipped Labs.** **2. To develop an ability to work ethically and Responsive towards the need of society.**

IT Student NPTEL Certificate 2020-21

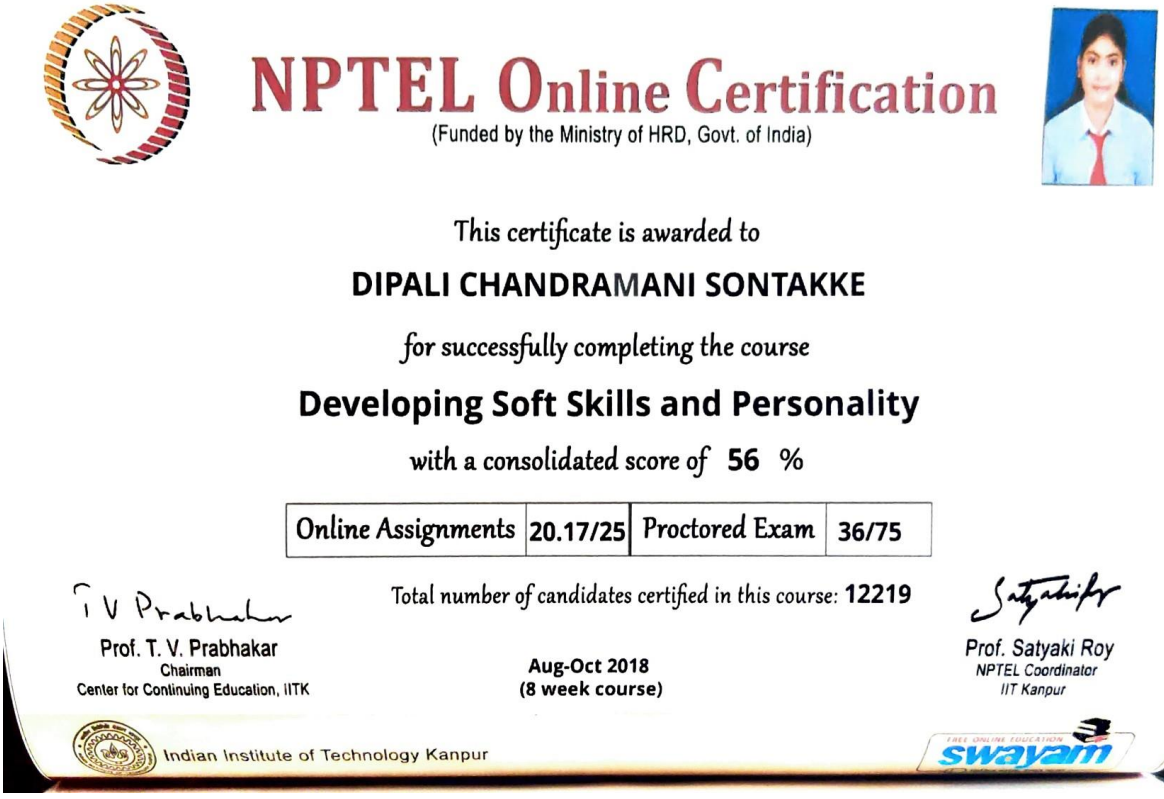


Figure 1-NPTEL_IT_2020-21

HOD IT

H.O.D.
Department of CSE-IT
JDCOEM, Nagpur

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

VISION	MISSION
"To be a centre of excellence of learning and research in Mechanical Engineering."	1. To provide high quality, innovative and research environment in Mechanical Engineering. 2. To impart soft skills and hard skills to achieve the institutional vision.

ME Student NPTEL Certificate 2020-21


Elite

NPTEL Online Certification
(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to
VAIBHAV FULCHAND DHUWARE
for successfully completing the course

Design Practice

with a consolidated score of 76 %

Online Assignments	20.42/25	Proctored Exam	55.5/75

Total number of candidates certified in this course: 140

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2021
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

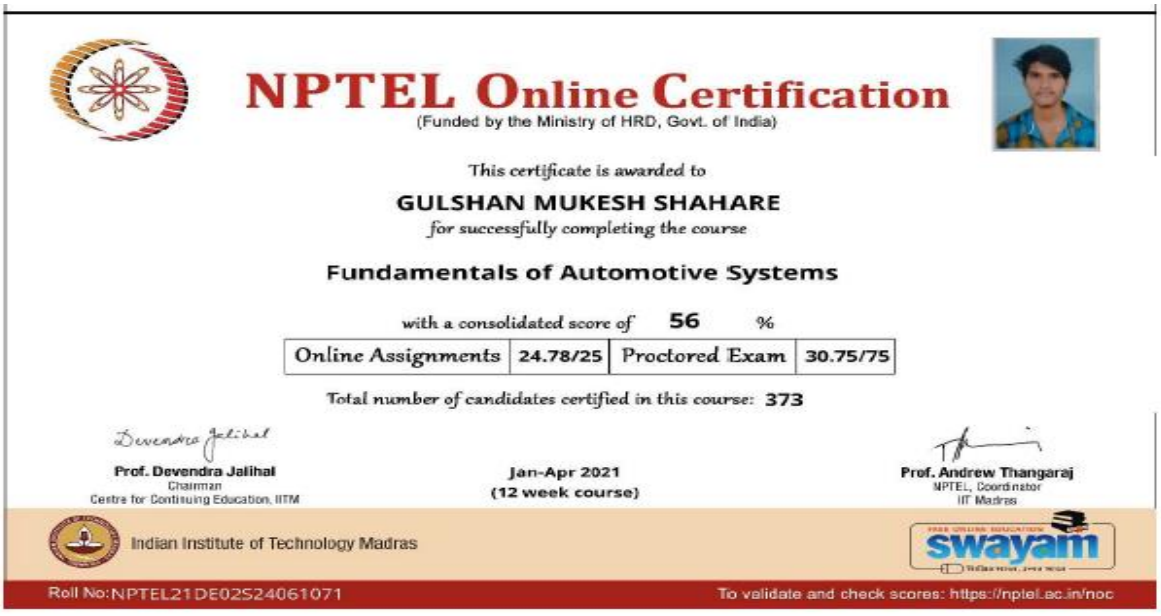
Indian Institute of Technology Kanpur

swayam

Roll No:NPTEL21ME31S24061319

To validate and check scores: https://nptel.ac.in/noc

STUDENT NPTEL CERTIFICATE 2020-21


NPTEL Online Certification
(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to
GULSHAN MUKESH SHAHARE
for successfully completing the course

Fundamentals of Automotive Systems

with a consolidated score of 56 %

Online Assignments	24.78/25	Proctored Exam	30.75/75

Total number of candidates certified in this course: 373

Prof. Devendra Jalihal
Chairman
Centre for Continuing Education, IITM

Jan-Apr 2021
(12 week course)

Prof. Andrew Thangaraj
NPTEL, Coordinator
IIT Madras

Indian Institute of Technology Madras

swayam

Roll No:NPTEL21DE02S24061071

To validate and check scores: https://nptel.ac.in/noc

STUDENT NPTEL CERTIFICATE 2020-21

Bhushan R.Mahajan
Head of Department,
DOME
JDCOEM
Mechanical Engineering
D College of Engineering & Management

Department of Mech. Engg. JDCOEM

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

VISION	MISSION
To be a center of excellence imparting professional education satisfying societal and global needs.	1. Transforming students into lifelong learners through, quality teaching, training and exposure to concurrent technologies. 2. Fostering conducive atmosphere for research and development through well-equipped laboratories and qualified personnel in collaboration with global organizations.

MBA Student NPTEL Certificate 2020-21

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS60S72021034

To
AKANKSHA RAVINDRA TEMBHURNE
PLOT NO.184 ANGULIMAL NAGAR, PATANKAR SQUARE, NAGPUR
MAHARASHTRA - 440026
PH. NO :9764037471

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:3
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

AKANKSHA RAVINDRA TEMBHURNE

for successfully completing the course

Soft Skills

with a consolidated score of **57** %

Online Assignments	22.06/25	Proctored Exam	34.88/75

Total number of candidates certified in this course: **3401**

Prof. V. C. Srivastava
Coordinator, Continuing Education Centre
IIT Roorkee

Sep-Dec 2020
(12 week course)

Prof. Inderdeep Singh
NPTEL Coordinator
IIT Roorkee

Indian Institute of Technology Roorkee

Roll No: NPTEL20HS60S72021034 To validate and check scores: https://nptel.ac.in/noc

1. MBA : 2020-21

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

VISION	MISSION
To be a center of excellence imparting professional education satisfying societal and global needs.	1. Transforming students into lifelong learners through, quality teaching, training and exposure to concurrent technologies. 2. Fostering conducive atmosphere for research and development through well-equipped laboratories and qualified personnel in collaboration with global organizations.

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL21HS07S22030291

To
AMIT DEVENDRA GHODESHWAR
PLOT NO. 101, NEAR N M C PRIMARY SCHOOL,
LASHKARIBAGH, HARIDAS NAGAR
NAGPUR
MAHARASHTRA - 440017
PH. NO :9518715893

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

TOP TOPPER 5%

This certificate is awarded to

AMIT DEVENDRA GHODESHWAR

for successfully completing the course

Soft Skill Development

with a consolidated score of **75** %

Online Assignments	20.29/25	Proctored Exam	54.58/75

Total number of candidates certified in this course: **2267**

Prof. G P Raja Sekhar
Dean, Continuing Education
IIT Kharagpur

Jan-Mar 2021
(8 week course)

Prof. Debjani Chakraborty
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

FREE ONLINE EDUCATION swayam

Roll No:NPTEL21HS07S22030291 To validate and check scores: https://nptel.ac.in/noc

2. MBA: 2020-21

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

HOD- MBA
Dean of Management Studies (MBA)
J.D. College of Engineering & Management
Nagpur

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in

(An Autonomous Institute, with NAAC "A" Grade)

Department of Computer Science & Engineering

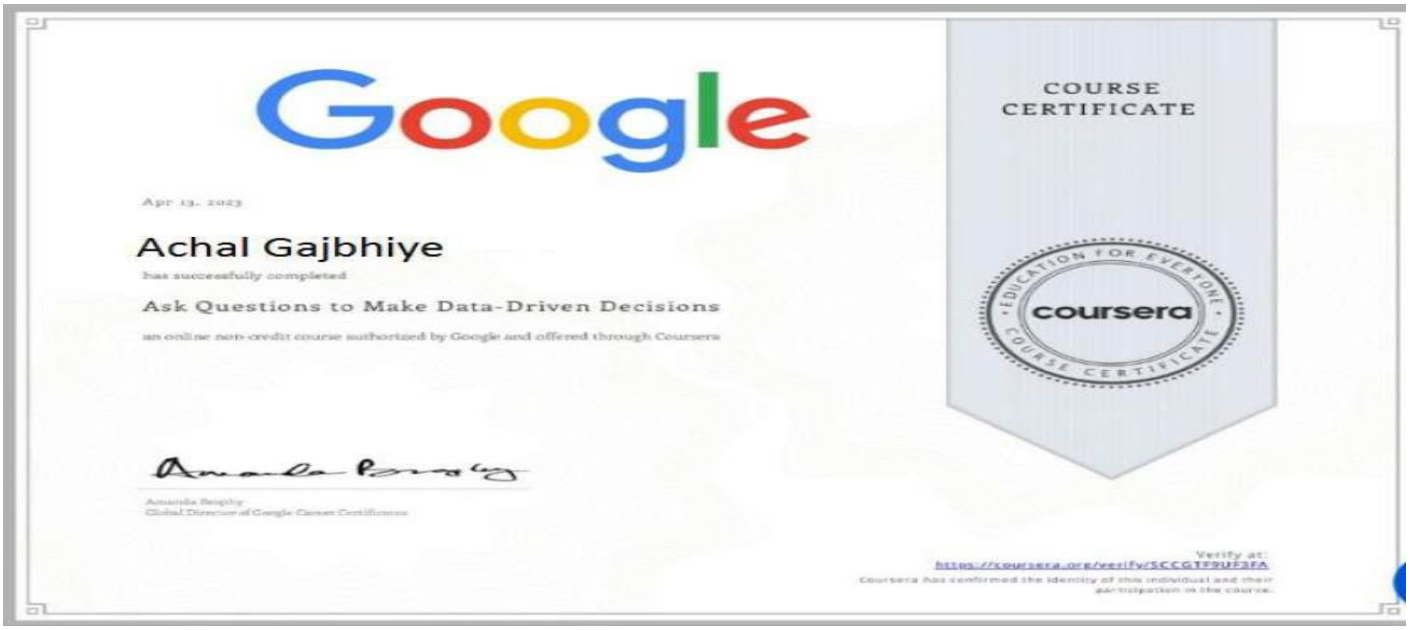
"A Place to Learn, A Chance to Grow"

Session: 2020-21

VISION	MISSION
To be recognized for excellent engineering, developing global leaders both in educational and research in the domain of computer science and wireless engineering.	1. To create self-learning environment by facilitating leadership qualities, team spirit and ethical responsibilities. 2. To improve department-industry collaboration, interaction with professional society through technical knowledge and internship program. 3. To promote research and development with current techniques through well qualified resources in the area of computer science and wireless engineering.

CSE Student Coursera Certificate 2020-21

2020-21 CSE Coursera Certificate



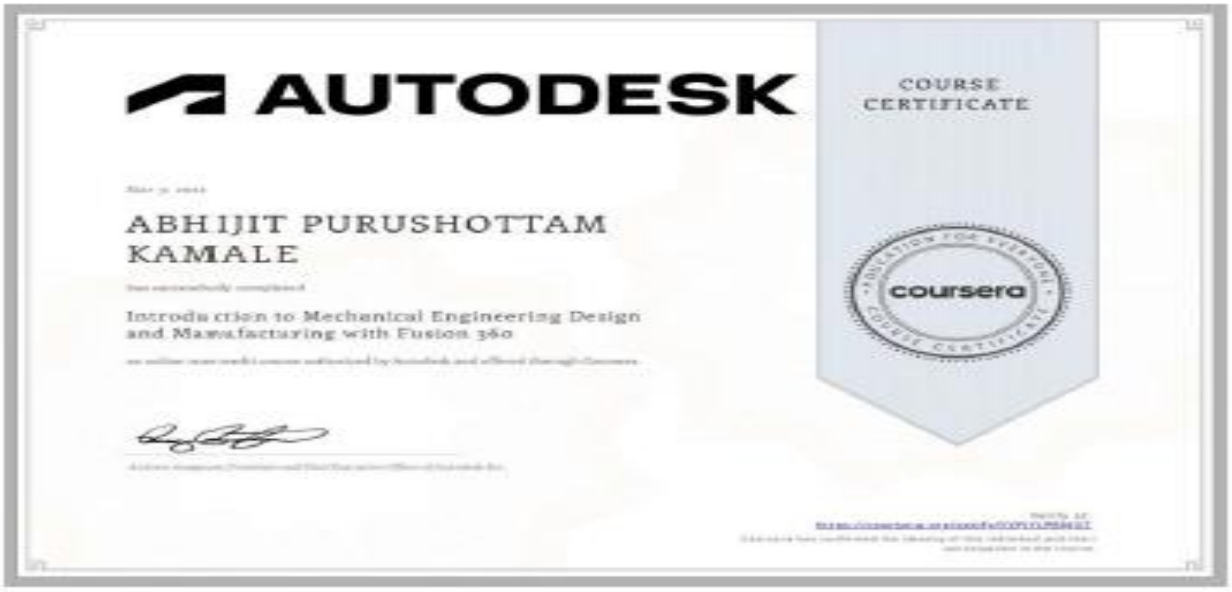
2020-21 CSE Coursera Certificate

Prof. Supriya Sawwashere
HOD. CSE
HOD
Computer Science & Engineering
JDCOEM, Nagpur

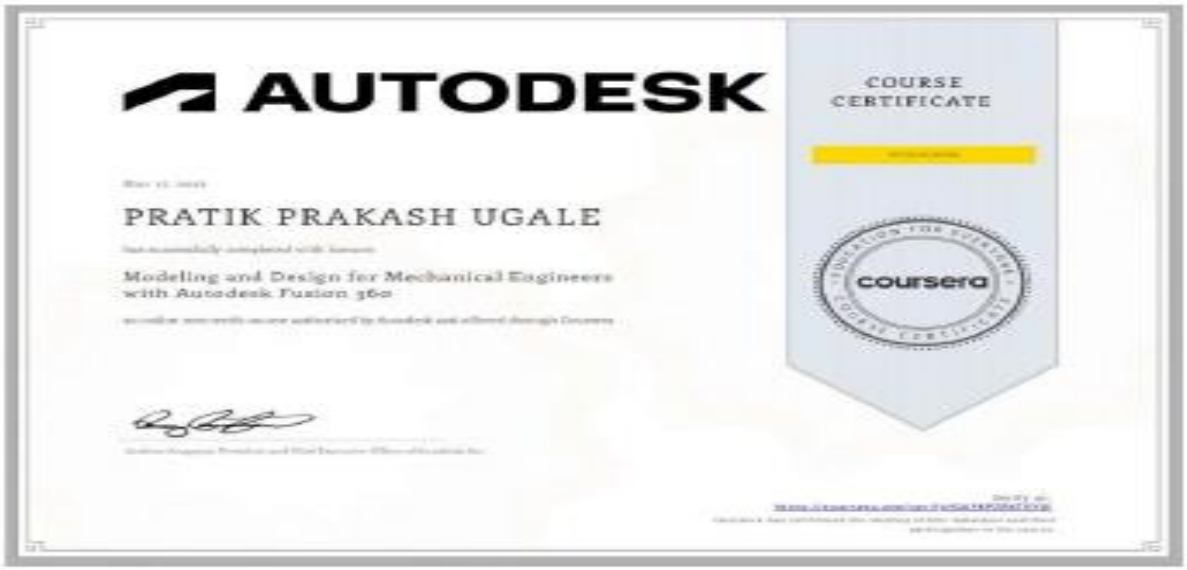
Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

VISION	MISSION
"To be a centre of excellence of learning and research in Mechanical Engineering."	1. To provide high quality, innovative and research environment in Mechanical Engineering. 2. To impart soft skills and hard skills to achieve the institutional vision.

ME Student Coursera Certificate 2020-21



STUDENT COURSERA CERTIFICATE 2020-21



STUDENT COURSERA CERTIFICATE 2020-21

Bhushan R.Mahajan
Head of Department,
DOME

Head of Department
Mechanical Engineering
JD College of Engineering & Management

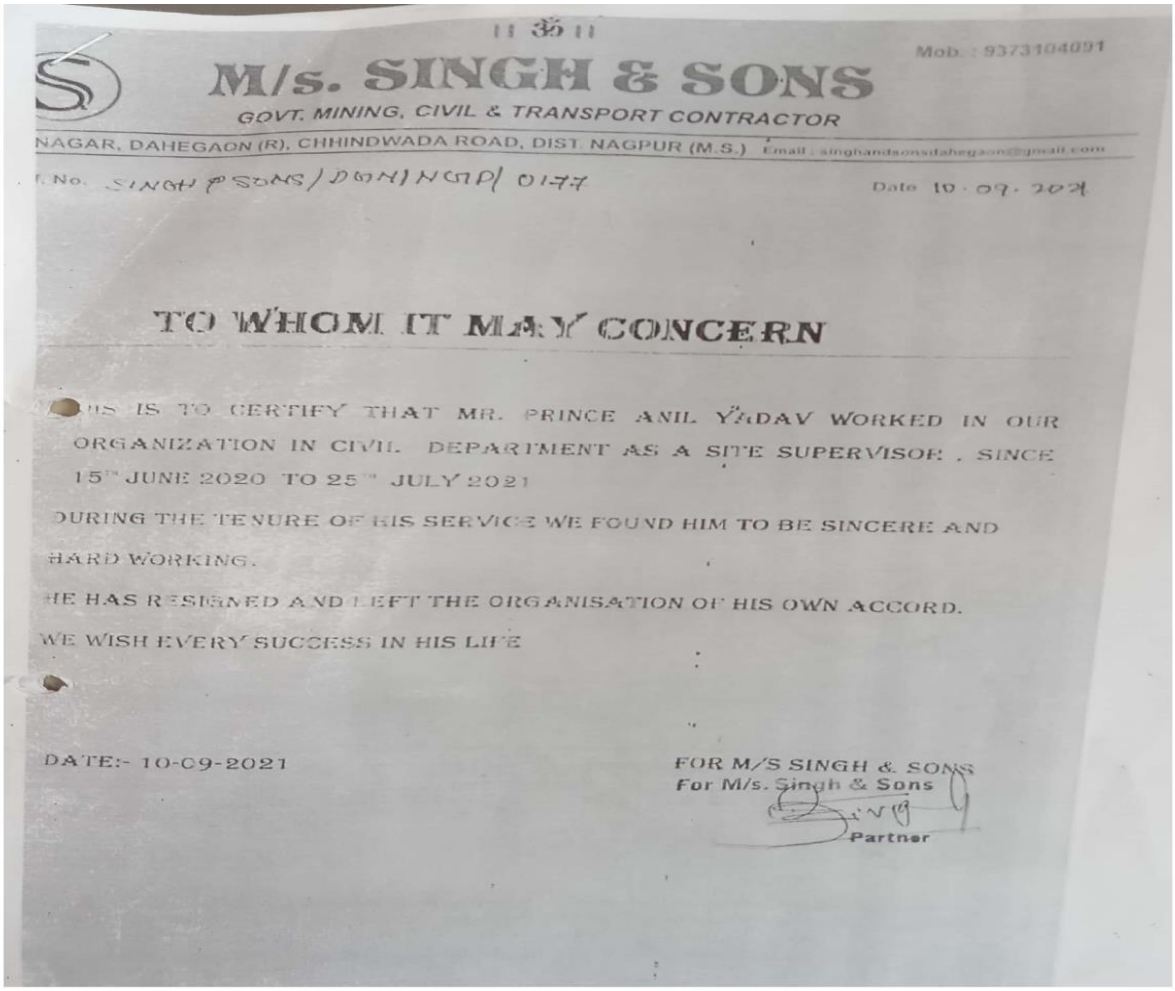
Department of Mech. Engg. JDCOEM

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

Education to Eternity

JAIDEV EDUCATION SOCIETY'S
JD COLLEGE OF ENGINEERING AND MANAGEMENT
KATOL ROAD, NAGPUR
Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in
An Autonomous Institute, with NAAC "A" Grade
Affiliated to DBATU & RTMNU
Department of Civil Engineering
"Building Better Development"
Session 2020-2021

VISION	MISSION
To be a well-known center for shaping professional leaders of Global Standards in Civil Engineering	• Provide quality education and excellent learning Environment for overall development of students. • Making Sustainable efforts for integrating academics with Industry.



॥ ॐ ॥

Mob. : 9373104091

M/s. SINGH & SONS

GOVT. MINING, CIVIL & TRANSPORT CONTRACTOR

NAGAR, DAHEGAON (R), CHHINDWADA ROAD, DIST. NAGPUR (M.S.) Email : singhandsonsdahegaon@gmail.com

T.No. SINGH & SONS/DGN/NGP/ 0177 Date 10.09.2021

TO WHOM IT MAY CONCERN

THIS IS TO CERTIFY THAT MR. PRINCE ANIL YADAV WORKED IN OUR ORGANIZATION IN CIVIL DEPARTMENT AS A SITE SUPERVISOR . SINCE 15TH JUNE 2020 TO 25TH JULY 2021

DURING THE TENURE OF HIS SERVICE WE FOUND HIM TO BE SINCERE AND HARD WORKING.

HE HAS RESIGNED AND LEFT THE ORGANISATION OF HIS OWN ACCORD.

WE WISH EVERY SUCCESS IN HIS LIFE

DATE:- 10-09-2021

FOR M/S SINGH & SONS
For M/s. Singh & Sons
Partner

Scanned with CamScanner

Student Internship Completion Cerificate (CE)- 2020-21

HOD, (CE)

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

JAIDEV EDUCATION SOCIETY'S
JD COLLEGE OF ENGINEERING AND MANAGEMENT
KATOL ROAD, NAGPUR
Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in
An Autonomous Institute, with NAAC "A" Grade
Affiliated to DBATU & RTMNU
Department of Civil Engineering
"Building Better Development"
Session 2020-2021

Education to Eternity

।।ज्ञानम् सर्वार्थ साधनम्।।

VISION	MISSION
To be a well-known center for shaping professional leaders of Global Standards in Civil Engineering	• Provide quality education and excellent learning Environment for overall development of students. • Making Sustainable efforts for integrating academics with Industry.

UMEED INDIA FOUNDATION

TRUST REGISTRATION S. NO. DEL UR25851-0802

Ref. No: UIF21/082
Date:-31-10-2021

Certificate of Internship

We present this certificate to

Ms. ASHWINI DOKE

In appreciation for your successful work as an Human Resource intern at Umeed India Foundation.

The internship was conducted between 01-08-2021 and 31-10-2021.

During the tenure this internship the candidate was found to be dedicated, hardworking and efficient.

Subhrajeet Gautam
(Founder & Secretary)

RAJU PARK KHANPUR

Scanned with CamScanner

Student Internship Completion Cerificate (CE)- 2020-21

HOD, (CE)

Principal
Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

J D COLLEGE OF ENGINEERING & MANAGEMENT * NAGPUR *

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in

(An Autonomous Institute, with NAAC "A" Grade)

Affiliated to DBATU, RTMNU & MSBTE Mumbai

Department Of Electrical Engineering

"Igniting minds to illuminate the world"

2020-21

VISION	MISSION
"To develop competent and committed Electrical Engineers to serve the society"	1. To impart quality education in the field of Electrical Engineering. 2. To be excellent learning centre through research and industry interaction.

SHARDA ELECTRONICS & CO.

An ISO 9001:2015 & 14001:2015 Certified Company

Manufacturers of Power Capacitor & Electrical Products

Electrical Consultant & Auditor

Certificate of Achievement

Proudly Present to Mr / Ms / Mrs .. Ankur Rajesh Dongre

Has sincerely completed One Month **Technical Skill Development Internship** in Sharda Electronics & Co.,

MIDC Kupwad, Sangli, Maharashtra, India. From 29.06.2020 to 29.07.2020

Dr. Abhijeet R. Shete
Technical Director

Mr. Rajendra S. Shete
Managing Director

Internship Certificate 2020-21 EE Department

H.O.D

PRINCIPAL

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

JAIDEV EDUCATION SOCIETY'S

J D COLLEGE OF ENGINEERING AND MANAGEMENT

KATOL ROAD, NAGPUR

Website: www.jdcoem.ac.in E-mail: info@jdcoem.ac.in

(An Autonomous Institute, with NAAC "A" Grade)

Affiliated to DBATU, RTMNU & MSBTE Mumbai

Department Of Electrical Engineering

"Igniting minds to illuminate the world"

2020-21

VISION	MISSION
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SHARDA ELECTRONICS & CO.

An ISO 9001:2015 & 14001:2015 Certified Company

Manufacturers of Power Capacitor & Electrical Products

Electrical Consultant & Auditor

Certificate of Achievement

Proudly Present to Mr / Ms / Mrs .. Sahil Arvind Chole

Has sincerely completed One Month **Technical Skill Development Internship** in Sharda Electronics & Co.,

MIDC Kupwad, Sangli, Maharashtra, India. From 29.06.2020 to 29.07.2020

Dr. Abhijeet R. Shete
Technical Director

SHARDA ELECTRONICS & CO. KUPWAD SANGLI

Mr. Rajendra S. Shete
Managing Director

Internship Certificate 2020-21 EE Department

H.O.D

PRINCIPAL

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

J D COLLEGE OF ENGINEERING & MANAGEMENT * NAGPUR *

Infosys
Navigate your next

Forage

Inspiring and empowering future professionals

25ETC BHAVESH

Power Programmer Virtual Experience Program

Certificate of Completion

May 21th, 2021

Over the period of May 2021, 23ETC Bhavesh has completed practical task modules in:

Create a Local Couchbase Lite DB
Integrate React Native with Couchbase DB

J D COLLEGE OF ENGINEERING & MANAGEMENT * NAGPUR *

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

HOD, Dept. of EN/ETC
JD College of Engineering
& Management, Nagpur

Tom Brunskill
CEO, Co-Founder of Forage

Enrolment Verification Code Tn7mksgvk37XhEciv | User Verification Code MNNAnvAAC2fuZ4Gzy | Issued by Forage

MasterSoft
ERP Solutions Pvt. Ltd.
Accelerating education....

9/24/2021

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Chaitanya Ghuse** has successfully completed his internship at **MasterSoft ERP Solutions Pvt. Ltd.** The internship program commenced dated **3/4/2021** and ended on **8/31/2021.**

During this period he worked on **"Implementation and support"** in CCMS Support Department.

He has good knowledge of the project and has successfully completed the same within the assigned date.

We wish him success in all his future endeavors.

Thanking You,

For MasterSoft ERP Solutions Pvt.Ltd, Nagpur

MasterSoft ERP Solutions Pvt. Ltd. NAGPUR

Yasmeen Shajapurwala

Manager – HR

MasterSoft ERP Solutions Pvt. Ltd. NAGPUR

J D COLLEGE OF ENGINEERING & MANAGEMENT NAGPUR

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

Robocoupler Pvt. Ltd.
Visakhapatnam Division:
MVP Colony, Sector – 04, Back Side Indian Oil Petrol Bunk, Isakhathota – 530017, Ph.: +91 8142678901
www.robocoupler.com , robocoupler@gmail.com

****

CIN NO: U72900AP2019PTC112448

EXPERIENCE CERTIFICATE

TO WHOM IT MAY CONCERN

Dated: 8th Sept 2021

This is to certify that **Mr./Ms./** Himanshu Wakodikar Identity number **ID:** ROBOCMSME202105 has been working in our organization as an intern from period 28th May 2021 - 8th Sept 2021

During the tenure, He/She was exposed to do various activities and services in developing **Robotics and Automation** were found to be satisfactory. We found extremely inquisitive and hardworking and very much interested to learn the functions of our core division and also willing to put best and get in to the depth of the subject to understand it better. Also having good design skills with a Self-motivated attitude to learn new things. The performance exceeded the expectations and was able to complete the project successfully on time.

During the tenure the responsibilities were to:

- ✓ Developing Algorithm for the projects Ideas given
- ✓ Working on PCB and Generating Gerber Files with KICAD tools
- ✓ Working on Proteous for Mechatronics Projects
- ✓ Perform periodic hardware and software system for Real Time Embedded Systems

I want to personally thank you for all of this but also for your steadfast loyalty and commitment, to our company's success and the association with us was very fruitful and we wish all the best in their endeavors.

Yours Faithfully
PRAVEEN MALLA – C.E.O.
Robocoupler Pvt. Ltd.

Praveen Malla
10th september 2021

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

Internship offer letter

22-04-2021
SURAJ NAGINA

Email ID- surajnagina1@gmail.com
Contact Number - +91 8600550213

Dear SURAJ,

I am delighted & excited to welcome you to Whitehat Education Technology Private Limited (WhiteHat Jr.) as an Intern - Pre Sales in the Slot Booking department. At WhiteHat Jr. we believe that our team is our biggest strength and we take pride in hiring ONLY the best and the brightest. We are confident that you would play a significant role in the overall success of WhiteHat Jr. and wish you the most enjoyable, learning packed and truly meaningful internship experience with WhiteHat Jr.

Your internship will be governed by the terms and conditions presented in Annexure A.

We look forward to you joining us. Please do not hesitate to call us for any information you may need. Also, please sign the duplicate of this internship letter as your acceptance and forward the same to us.

Congratulations!

For **Whitehat Education Technology Pvt. Ltd.,**

Name: Karan Bajaj

Designation: Founder & CEO
Date: 22-04-2021

J D COLLEGE OF ENGINEERING & MANAGEMENT

Principal
J D College of Engineering & Management
Khandala, Katol Road
Nagpur-441501

Annexure A

You shall be governed by the following terms and conditions of service during your internship with WhiteHat Jr., and those may be amended from time to time.

1. You are being hired as an Intern - Pre Sales in the Slot Booking department. You would be assigned a mentor during the internship. Your project would involve learning the pre-sales process and you would also be responsible to aid the pre-sales process in the company

2. You will be provided Twelve thousand (INR 12000/-) for 26-04-2021 to 31- 07-2021 monthly as a stipend. Any period of epidemic/pandemic and force majeure will not be computed for continuity of service under applicable Labour and Employment Laws

3. Your date of joining is 26-04-2021 and the duration of the internship would be up to 26-04-2021 to 31- 07-2021 monthly and may be extended till further period as per the business requirement and upon your successful completion of internship project

4. During this tenure you are expected to devote your time and efforts solely to WhiteHat Jr. work. You are also required to let your mentor know about forthcoming events (if there are any) in advance so that the internship project can be planned accordingly

5. You would be required to be available for this project 9 hours per day, where these 9 hours would be assigned anytime between 9:00 AM to 9:00 PM. Week off will be given as per the roster that you would be assigned to by your respective mentor

6. You would be eligible for a leave of one day after every 30 days of internship completion. No additional leave is allowed during this internship period

7. You will be part of this internship project remotely/physically on an office basis business requirement during the internship. There will be catch-ups scheduled with your mentor to discuss progress and overall internship experience at regular intervals

8. All the learning that you will produce at or in relation to WhiteHat Jr. will be the intellectual property of WhiteHat Jr.. You are not allowed to store, copy, sell, share, and distribute it to a third party under any circumstances. Similarly, you are expected to refrain from talking about your learning in public domains (both online such as blogging, social networking site and offline among your friends, college, etc.) without prior discussion and approval from your mentor

9. We take data privacy and security very seriously and it will be your responsibility to maintain the confidentiality of any students, customers, clients, and companies' data and contact details that you may get access to during your internship. WhiteHat Jr. operates on the zero-tolerance principle with regard to any breach of data security guidelines. At the completion of the internship, you are expected to hand over all WhiteHat Jr. data stored on your Personal Computer to your mentor and delete the same from your machine

10. During the internship period, you shall not engage yourself directly or indirectly or in any capacity in any other organization (other than your college). In the event of a breach of this condition, this offer is liable to be terminated forthwith by the company. In addition, you shall be liable to pay liquidated damages to the Company of an extent estimated by the Company

11. At any point during your internship the company or you may terminate this association by providing a notice of 14 days without assigning any reason. However, the company may terminate this agreement forthwith under situations of in-disciplinary behaviors and/or Zero tolerance activities and/or violation of the code of ethical business conduct of WhiteHat Jr

12. You are expected to conduct yourself with the utmost professionalism in dealing with your mentor, team members, colleagues, clients and customers and treat everyone with due respect

13. WhiteHat Jr. is a start-up and we love people who like to go beyond the normal call of duty and can think out of the box. Surprise us with your passion, intelligence, creativity and hard work – and expect appreciation & rewards to follow

14. Expect constant and continuous objective feedback from your mentor and other team members. we encourage you to ask for and provide feedback at every possible opportunity. It's your right to receive and give feedback – this is the ONLY way we all can continuously push ourselves to do better

15. Have fun at what you do and do the right thing – both the principles are core of what WhiteHat Jr. stands for and we expect you to imbibe them in your day to day actions and continuously challenge us if we are falling short of expectations on either of them

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Scope of Work

The scope of work during this internship will be and not limited to the following:

- Call and engage with potential customers (Whitehat, Byju or any other affiliates)
- Pitch the Whitehat Jr value proposition to the user
- Book a trial class for the interested users
- Follow up or resolve any issues for the user is facing to complete the trial class

Performance Assessment and Pre-Placement Offer (PPO)

- Your learning and performance is subject to periodic review, which is at a weekly frequency or any such frequency as decided by your mentor from time to time
- PPO is subject to your successful completion of the assigned projects as per the scope of work and role availability

Miscellaneous

- You are entitled to claim monthly reimbursement of mobile calling + internet charges upto Inr. 1500/- or as per actuals of the valid bill whichever is the lowest
- Aforementioned reimbursement is subject to submission of valid bills
- You are eligible for incentives as per incentive policy that will be communicated upon joining
- You are required to submit scanned copies of Pan Card, Aadhar Card, Cancelled Cheque, College (I'd card), Address proof

This internship offer shall be subject to you agreeing upon the following terms and conditions, jointly and independently binding upon you totally.

A. At Will: Being applauded and accepted by you at your own will and has explained about the working methodology in the epidemic/pandemic and force majeure

B. Infrastructure: It is declared and accepted by you about having the requisite infrastructure to perform your duties from any location other than the workplace. Infrastructure means laptop/desktop with required configurations, updated RAM, video and audio features, a high speed internet connectivity with a minimum of 10 MBPS speed and a fully functional smart mobile phone. Failing to have the infrastructure at any point may lead to termination of the association with WhiteHatJr

C. You have agreed upon to perform as per the existing or change of any performance targets/ KRAs/KSAs during COVID 19 situation and or otherwise and failing which the said internship will come to an end without any stipend

D. Any litigation, grievances and disputes with regards to this will be treated null and void, which you declare at your wish and will.

Acceptance by the Intern:

I have negotiated, agreed, read and understood all the terms and conditions of this Internship letter as well as Annexure hereto and affix my signature in complete acceptance of the terms of the letter

Date:

Place:

SURAJ NAGINA

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Nagpur-441501

Bhushan R.Mahajan
Head of Department,
DOME
JD College of Engineering & Management
Mechanical Engineering
Nagpur

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Basic Science & Humanities Department

Semester-I_SESSION: 2020-21

Year/Semester: 1st Semester (First Year)

Assignment for All Branches

Engineering Mathematics

Assignment-I

Date: 10/08/2020 **Max Marks: 20**

Q.No.	Questions	CO's	Marks
Q1	Define the order and degree of differential equation. $\frac{d^2y}{dx^2}+3\left(\frac{dy}{dx}\right)^2+y=0$	CO1/1	5
Q2	Illustrate the C.F. $(D^3+D^2+4D+4)y=0$	CO2/2	5
Q3	Interpret the differential equation $(D^2+4)y=\cos 2x$	CO2/2	5
Q4	Solve the P. I. Of $(D^2+3D+2)y=e^{e^x}$	CO3/3	5
Q5	Apply the variation of parameter to get the solution $\frac{d^2y}{dx^2}+y=\sec x tanx$	CO4/4	

Last Date of Submission : 22/08/2020

Ms.Prerna M.Parkhi,
Subject Teacher

Dr.A.N.Gupta,
HOD, BSHD,JDCOEM

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Basic Science & Humanities Department

Semester-II_SESSION: 2020-21

Year/Semester: 1st Semester (First Year)

Engineering Mathematics-II

Assignment-I

COMPLEX NUMBER

Date: 05/06/2021 **Max Marks: 20**

Q.No.	Questions	CO's/Level	Marks
Q1	Illustrate $2\cos\theta = x + \frac{1}{x}$, $2cos\emptyset = y + \frac{1}{y}$, $Prove\ that\ x^m y^n + \frac{1}{x^m y^n} = 2\cos(m\theta + n\emptyset)$, $\frac{x^m}{y^n} + \frac{y^n}{x^m} = 2\cos(m\theta + n\emptyset)$	CO2/2	4
Q2	Identify all the values of $\left(\frac{1}{2} + i\frac{\sqrt{3}}{2}\right)^{\frac{3}{4}}$ and show that the continued product of all the values is 1.	CO3/3	4
Q3	Analyze the function $\sin(A + iB) = x + iy, then\ prove\ that$ (a) $\frac{x^2}{cosh^2 B} + \frac{y^2}{sinh^2 B} = 1$ (b) $\frac{x^2}{cos^2 A} - \frac{y^2}{sin^2 A} = 1$	CO4/4	4
Q4	Using Demoivre's theorem , solve $x^7 - x^4 + x^3 - 1 = 0$	CO3/3	4
Q5	Extend the function of $\frac{\sin 7\theta}{\sin\theta}$ in power of $\sin\theta$ only.	CO4/4	4

Last Date of Submission: 12/06/2021

Ms.Prerna M.Parkhi,
Subject Teacher

Dr.A.N.Gupta,
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Department Of Electrical Engineering

"Igniting minds to illuminate the world"

2020-21 (Odd Sem)

VISION	MISSION
"To develop competent and committed Electrical Engineers to serve the society"	1. To impart quality education in the field of Electrical Engineering. 2. To be excellent learning center through research and industry interaction.

Assignment

Subject	Electrical Drives
Subject code	BTEEC703
Semester/Year	7^{th} / 4^{th}
Unit No. I	**INTRODUCTION to Electrical Drives**
Date of display	16/10/2021
Date of submission	30/10/2021

Sr. No.	Question	Mapped Co
1	State the advantages of electrical drives	CO1/ CO2
2	Explain four quadrant operation of Electrical Drives ?	CO1/CO3/CO4
3	Write in short about the components of Electrical Drives ?	CO3
4	Give the derivation of Dynamics of load torque ?	CO3/CO4

Subject teacher-ED

Academic incharge

HOD EE

PRINCIPAL

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Department of Mechanical Engineering

2020-21 (Even Sem)

VISION	MISSION
"To be a centre of excellence of learning and research in Mechanical Engineering.".	1. To provide high quality, innovative and research environment in Mechanical Engineering. 2. To impart soft skill and hard skill to achieve institutional vision.

Assignment 2 **Date: 11/02/2021**

Course: B. Tech. in Mechanical Engineering

Subject: Research Methodology

Subject Code: ME6T005

Year/Semester: 6th Semester (3rd Year)

Q. No.	Question	Level	CO	Marks
01.	Explain different types of MOCT and MOV with its advantages and limitation.	2	1	10
02.	Explain different types of Hypothesis. Also explain the significance of Null and Alternative hypothesis.	2	1,3	10
03.	Demonstrate Research methodology of any case study	6	3,6	10
04.	Compare various sources of information for literature review and data collection.	5	2,4	10

Submit via google classroom (Code- bp7rctw)

Prof. S. G. Chakrabarty
Subject Teacher

Prof. D. A. Agrawal
Academic In charge

Bhushan R.Mahajan
Head of Department,
DOME
JDCOEM, Department
Mechanical Engineering
JD College of Engineering & Management
Nagpur

Department of Mech. Engg. JDCOEM

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Semester: - MBA I Semester **Subject Code:-1T1**

Subject Name: - Organizational Behaviour **Assignment: 2020-21**

==========

All Questions are Compulsory:

Q.1. Himalaya wants to open a new departmental store in lonara, rural Nagpur, As a Consultant head suggest best organization design for Himalaya along with suitable reason.

Q.2. Dabur one the leading firm in India wants to hire store managers for their departmental stores as a HR head what component of individual behavior will be very important for hiring? Discuss

Q.3. HDFC Standard Life Insurance appointed new sales team leader for vidharbha region. As a new comer he not only look after to his team performance but also maintain the growth in the sales. Suggest what steps would he apply to motivate his employees so as to maintain the performance as well the growth of HDFC SLI.

Q.4. VIP is a newly registered trust working in a society with the objectives to educate poor children in rural Nagpur. As a member of VIP trust, what are the various stages of Group Development that you will go through while working?

Q.5. Coming together is a beginning, keeping together is progress, and working together is success". Analyze the above statement highlighting the importance and benefits of teamwork in a startup

Q.6.. Maruti Suzuki is planning to launch its new "SUV M500" in Indian market. A conflict has arisen between two senior members of the marketing department on the issue of media to be used for promotions. This has created a problematic situation for the subordinates to work. State and explain what all techniques can be used to resolve this conflict.

Q.7. Explain the various causes for change in organization and Demonstrate how Globalization & Workforce diversity has forced to bring the change in an Organization.

Subject In charge **Dept. Academic Incharge** **Dept. Head MBA**

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Semester: - MBA II Semester **Subject Code:-2T5**

Subject Name: - International Business **Assignment: 2020-21**

==========

All Questions are Compulsory:

Q.1.A. Explain the various concept of international business. Discuss the Importance of IB.

OR

Q.1.B. Discuss regional trade blocs. Elaborate various types of trade agreement

Q.2.A. Discuss various modes of entry into International Business

OR

Q.2.B. Give a detail note on International Business Approach ethnocentric, polycentric, regiocentric & geocentric

Q.3.A. Explain various micro factor affecting in International Business Environment

OR

Q.3.B. Explain various macro factor affecting in International Business Environment

Q.4.A. Explain the role of various government institute supporting foreign trade

OR

Q.4.B. Discuss various government institute supporting foreign trade

Q.5. A. Discuss the role of EXIM policy in details

OR

Q.5.A. what are role of RBI in exchange management

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Semester: - MBA III Semester **Subject Code:-3T4**

Subject Name: - Integrated Marketing Communication & Brand Management **Assignment: 2020-21**

==========

All Questions are Compulsory:

Q.1. Explain the concept of integrated marketing communication. How it is used to generate consumer response ?

Q.2. Develop a creative message strategy for considering current market situation

Q.3. Elaborate the classification of media with suitable examples of each. How media planning is done ?

Q.4. What is brand ? Explain the concept of customer based brand equity with suitable examples.

Q.5. What are the various steps in brand building ? Discuss how brand building activities can be used to create customer value.

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Semester: - MBA IV Semester **Subject Code:-4T5**

Subject Name: - Sales and Operations Planning **Assignment: 2020-21**

==========

All Questions are Compulsory:

Q1. Discuss need for forecasting. Also write Short term, Medium term and Long term.

Or

Q.1.B. Explain the Stages of forecasting and Sources of data

Q2.A. Discuss various Models of Forecasting

Or

Q2.B. Explain in details Causal Methods and Econometric Model

Q3.A. Explain Aggregate Planning in details

Or

Q3.B. Explain the Need for Aggregate Production planning

Q4.A. Discuss MPS and MRP

Or

Q4.B. Discuss the Relation between CRP and MRP

Q5.A. Write about Distribution Planning in detail

Or

Q5.B. Explain Inventory analysis and distribution planning, Use of ERP

Subject In charge **Dept. Academic Incharge** **Dept. Head MBA**

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Subject: Engineering Physics

By:Dr.Umashanakrsingh V. Rathod

Question Bank

Section-A

Sr. No.	Question
1	What is LASER? comment how it is differ from ordinary light.
2	What is the principle on which optical signal propagate through an optical fibre?
3	What is Optical fibre? Comment the principle on which signals propagates through optical fibre.
4	Clarify, how the Semiconductor are negative temeperature coefficient material.
5	Exaplain, How N-type semiconductor form?
6	Define Fermi energy in solids.
7	What do you mean by Forward bias of PN junction diode?
8	What is intrinsic & extrinsic semiconductors?
9	Comment, How, Fermi energy level vary with doping concentration in N-type semiconductor.
10	What do you mean by Reverse bias of PN junction diode?
11	What is Lorentz force?
12	What kind of force charge particle experience in magnetic field?
13	What kind of force charge particle experience in Electric field?
14	What is meant by equi-potential surface?
15	What is crossed field configuration?
16	Explain the force experienced by charge particle in uniform Electric field E and Magnetic field B.
17	Write the applications of CRO in medical field.
18	Explain the motion of electron in parallel uniform magnetic field B.
19	Explain the force experienced by charge particle in uniform Magnetic field B.
20	Explain the motion of electron in parallel uniform Electric field E.
21	What is a function of aquadag coating in CRT?
22	Define Interference in wave optics.
23	What is thin film?
24	State Brewster's law.
25	Define polarization of light.
26	Why the wedge shape fringes are straight, parallel and equi-spaced? Comment.
27	What is antireflection coating?
28	Why the Newton's rings are circular? Comment.

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29	What are the conditions for thin film to be antireflection coating?
30	What is meant by electromagnetic waves?
31	What do you mean by electromagnetic waves? How it propagates through free space?

Section-B

Sr. No.	Question
1	Discuss four level pumping scheme for Laser.
2	Discuss three level pumping scheme for Laser.
3	Why two level pumping scheme is difficult to achieve?
4	What is the difference between step index fiber and graded index fiber?
5	What is the difference between single mode fiber and multimode fiber?
6	Elaborate the phenomena of Total Internal Reflection of light in an optical fibre.
7	Show that Fermi level in an intrinsic semiconductor lies in the middle of the energy gap.
8	Explain, how Fermi Energy varies with doping concentration in N-type semiconductor.
9	Show that the velocity acquired by an electron in uniform electrostatic field varies as the square root of potential difference through which it is accelerated.
10	Explain the formation of a depletion region in a PN junction diode.
11	Explain the terms: 1.Drift Current 2.Diffusion Current
12	Explain P-N junction diode and illustrate its I-V characteristics in forward and reverse biased.
13	Write comparision between Snell's law and Bethe's law.
14	What is CRO? Draw a block diagram of CRO.
15	Interpret with an expression that electron follows parabolic path in transverse uniform electric field.
16	Obtain an expression for fringe width obtained in wedge shape thin film.
17	What is Brewster's law? Derive an expression for polarizing angle.
18	Obtain an expression for the path difference in case of interference in thin films due to reflected light.

Section-C

Sr. No.	Question
1	Explain with neat diagram the process of 1.absorption transition 2. spontaneous emission 3. stimulated emission of light.
2	Explain the construction and working of Ruby LASER with necessary energy level diagram.
3	Explain the construction and working of He-Ne LASER with necessary energy level diagram.

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5	What is Hall effect? Derive the expression for Hall coefficient, Hall voltage, Hall angle and Hall mobility in extrinsic semiconductor.
6	Draw the Band energy diagram of PN junction diode connected in Forward and Reversed biased mode.
7	Discuss the motion of charged particle in transverse uniform magnetic field and obtain the expression for radius, time period and frequency of circular motion.
8	Draw block diagram of CRO. Explain the function of time base circuit in CRO.
9	Draw an energy band diagram for p-n junction when (i) Unbiased (ii) Forward biased (iii) Reverse biased.
10	Write a note on electrical conductivity in Intrinsic semiconductor and derive its expression in terms of Band gap.
11	What is Hall effect? Derive an expression for Hall Coefficient.
12	A n-type germanium sample has a doner density of 10^{21} m^{-3}. It is arranged in Hall experiment having magnetic field of 0.5 tesla and current density is 500 A/m^2. Find the Hall voltage if the sample is 3 mm wide.
13	Write a note on electrical conductivity in Intrinsic semiconductor and derive its expression in terms of Band gap.
14	Find the conductivity of Intrinsic Germanium at 300 ^{0}K. Given that Intrinsic carrier density is 2.5 x 10^{19} m^{-3} and electron and holes mobility is 0.39 and 0.19 $m^2V^{-1}.S^{-1}$ respectively.
15	Draw an energy band diagram for p-n junction when (i) Forward biased (ii) Reverse biased.
16	Show that an electron with uniform velocity follows a parabolic path in transverse uniform electric field.
17	What is Bethe's law? Discuss the refraction of the electron beam across an equi-potential surface. Show how this concept is symmetrical with electrostatic lens.
18	Derive an expression for the radius, time period, frequency and pitch for an electron moving with an angle ø in magnetic field.
19	What is CRO? Explain in details the working of CRT.
20	Derive an expression for the radius, time period, frequency and pitch for an electron moving with an angle ø in magnetic field.
21	What is Bethe's law? Discuss the refraction of the electron beam across an equi-potential surface. Explain how it resembles with Snell's law.
22	Derive the condition for path difference for interference in thin parallel film due to reflected light.
23	What is fringe width? Obtain an expression for fringe width in a wedge shape thin film experiment.
24	Write the four Maxwell's equations in differential form & Derive a wave equation for electromagnetic wave in free space.
25	What is Poynting vector? Derive an expression to show that Poynting vector S is vector product of E and H.

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Section-D

Sr. No.	Question
1	Give the construction and working of He-Ne laser. Draw necessary energy level diagram.
2	Write four modern application of LASER.
3	Derive an expression for acceptance angle for step index fiber with the help of suitable diagram.
4	Find the Numerical aperture for an optical fiber with refractive indices of core and cladding as 1.5 and 1.49 respectively.
5	Outline the construction of Optical fibre and build a relationship of acceptance angle with Numerical aperture.
6	Calculate the numerical aperture, acceptance angle and fractional Refractive index change of an optical fibre whose core and cladding are made of materials of refractive index 1.6 and 1.5 respectively.
7	Show how acceptance angle is related to numerical Aperture, also explain the meaning of acceptance angle.
8	A step-index fibre has a numerical aperture of 0.26 and a core refractive index is 1.5. Calculate the refractive index of cladding and acceptance angle.
9	What is Hall effect? Derive the expression for Hall coefficient, Hall voltage, Hall angle and Hall mobility in extrinsic semiconductor.
10	What is Hall Effect? Derive the formula for Hall voltage and Hall coefficient with necessary diagram and interpretation.
11	A n-type germanium sample has a donor density of 10^{21} m^{-3}. It is arranged in Hall experiment having magnetic field of 0.5 Tesla and current density is 500 A/m^2. Find the Hall voltage if the sample is 3 mm wide.
12	Discuss the motion of charged particle in transverse uniform magnetic field and obtain the expression for radius, time period and frequency of circular motion.
13	Draw block diagram of CRO. Explain the time base circuit in CRO.
14	An Electron accelerated of 250 V enters the electric field at an angle of incidence of 50^0 and get refracted through an angle of 30^0. Find the potential difference between two regions.
15	Derive the condition for path difference for interference in thin parallel film due to reflected light.
16	What is Bethe's law? Derive an expression for it. In what way it resembles and differs from Snell's law.
17	Write the four Maxwell's equations in integral form. Derive a wave equation for electromagnetic wave in free space and show that electromagnetic wave travel with velocity of light C=3 $x10^8$ m/s in free space.

Dr.U.V.Rathod,
Subject Teacher

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Dr.A.N.Gupta,
HOD, BSHD,JDCOEM

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MBA 3rd Semester

Question Bank: Sales & Distribution Management

Academic Year 2020-21

1. Discuss Sales Management along with significance of SM.
2. Explain Sales Planning and Control
3. Define Sales Forecasting. Explain various methods of sales forecasting
4. Explain Estimating market and Sales Potentials in brief
5. Explain the Personnel Selling and discuss Steps of PS
6. Discuss the various types of sales territory
7. Prepare the Sales Budget for newly open juice company
8. Discuss Management of sales force
9. Describe Recruitment & Selection procedure of Sales force
10. Define Physical Distribution. Write importance of Physical Distribution.
11. Identifying the PD process
12. Highlighting various form of distribution channel
13. Discuss the Participants in physical distribution process
14. Explain Unconventional channels and Channel Intermediaries
15. Explain the concept and significance Supply Chain Management
16. Discuss Order Processing and Material Handling
17. Describe Transportation
18. Short Notes on: 1. Warehousing, 2. Inventory Management
19. Explain the Disintermediation and Re – intermediation
20. Write note on Electronic Intermediaries
21. Explain the E-enabled logistic Management
22. e-enabled logistics management

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Department of Civil Engineering

Subject: Design of Concrete Structures-II

MODULE I: INTRODUCTION

PREPARED BY:-
Ms. Shital A. Navghare
Assistant Professor,

Content

- Limit State of Collapse (Torsion)
- Types of Torsion
- Behavior of R.C. Rectangular Sections subjected to Torsion
- Design of sections subjected to combined bending and Torsion

Limit State Method

1. Limit State Method of Collapse: Flexure/Bending
2. Limit State Method of Collapse: Shear
3. Limit State Method of Collapse: Torsion
4. Limit State Method of Collapse: Compression

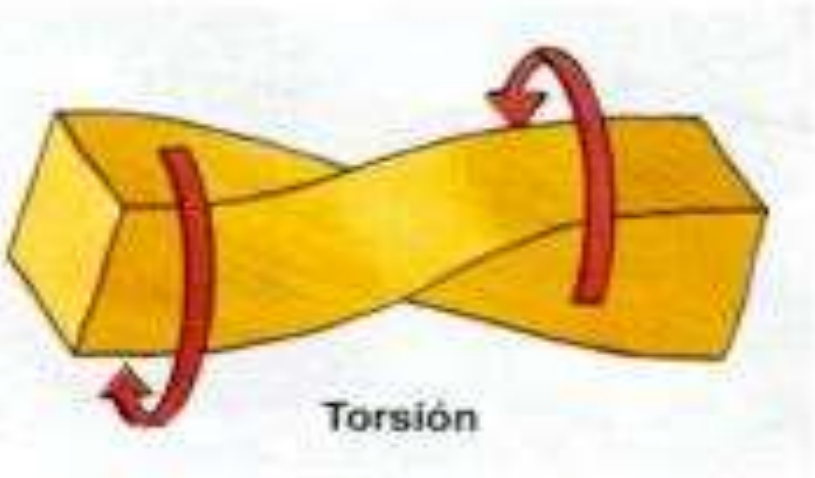
Torsion

- Torsion force is a twisting force that is applied on an object by twisting one end when the other is held in position or twisted in the opposite direction.
- Different materials have a different way of responding to torsion.
- Some will deform, crack or even break depending on the type of material.

Examples on Torsion

- If a plastic ruler is twisted between both hands. The ruler is said to be in a state of torsion.
- Whenever we turn a key in a lock the handle/shank of the key is in torsion.
- Propeller shaft on a ship. The engine turns the shaft, but the water resists the movement of the propeller. That induces torsion in the propeller shaft.

Examples



Torque

- In solid mechanics torsion is the twisting of an object due to applied torque.
- Twisting moments or torques are forces acting through distance so as to promote rotation.
- Torque = Force x Rotational Distance

Simple torque : T = F * l

Types of Torsion

Skew bending theory, space-truss analogy are some of the theories developed to understand the behavior of reinforced concrete under torsion combined with bending moment and shear.

These torsional moments are of two types:

1. 1 Degree/ Primary/ Equilibrium Torsion

2. 2 Degree/ Secondary/ Compatibility Torsion

Equilibrium Torsion

- Primary torsion is required for the basic static equilibrium of most of the statically determinate structures.
- Accordingly, this torsional moment must be considered in the design.

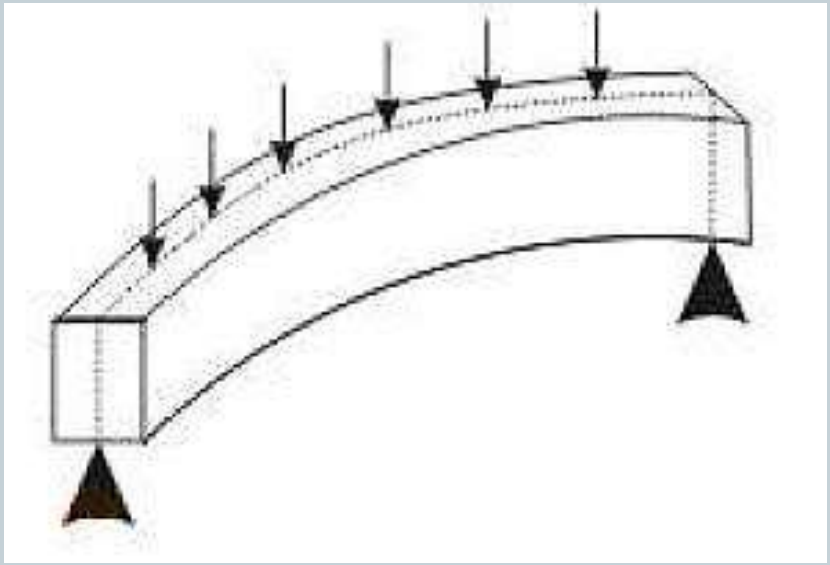


Fig. 1: Beams Curved in Plan

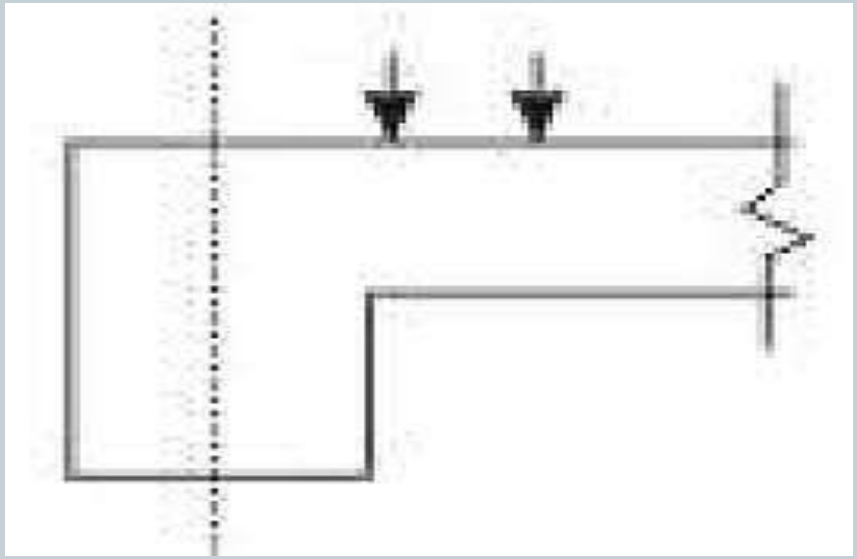


Fig. 2: L-Beams supporting cantilever sunshades and canopies

Equilibrium Torsion

- Other example may be where beam has transverse load not through shear center.
- These type of torsion occurs as structure tries to maintain equilibrium.
- It is independent of torsion stiffness of member.

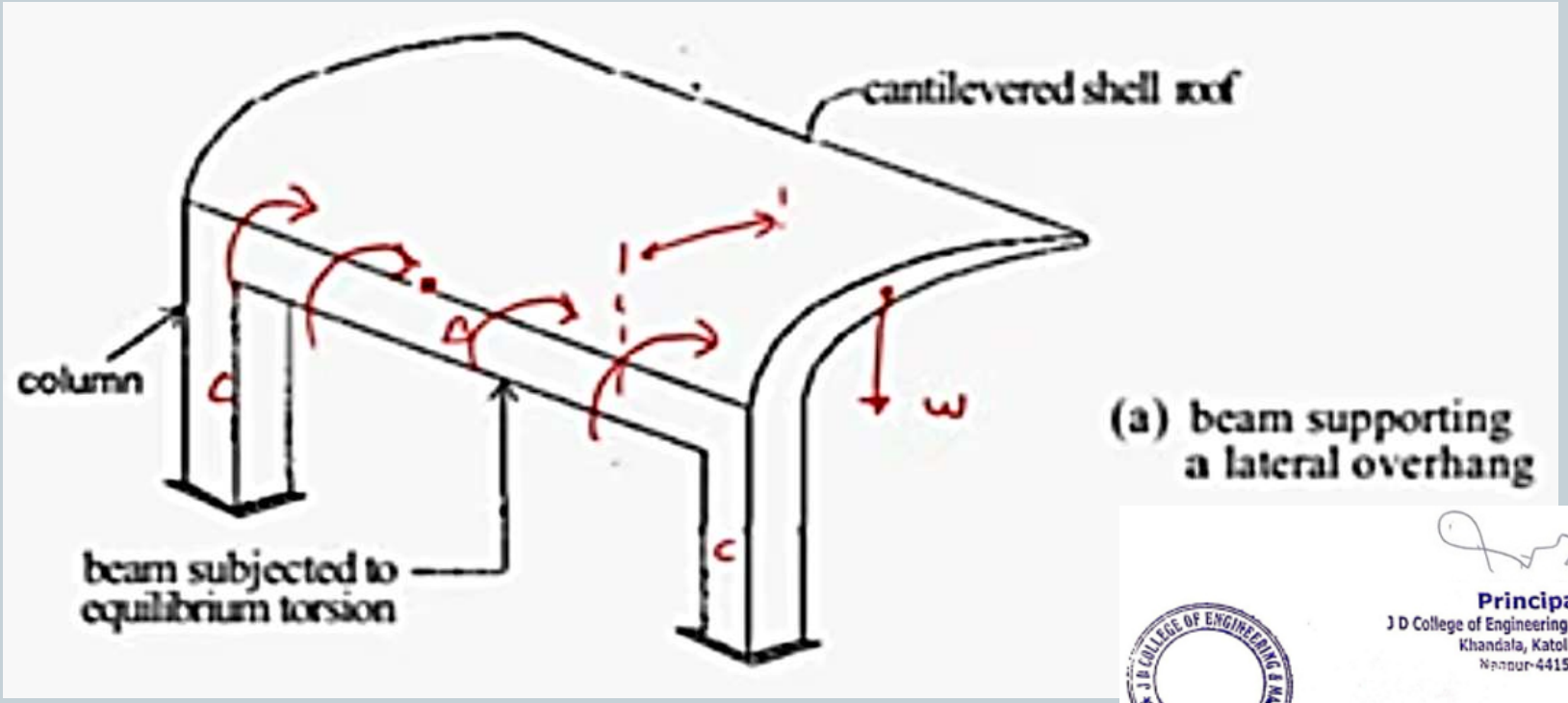


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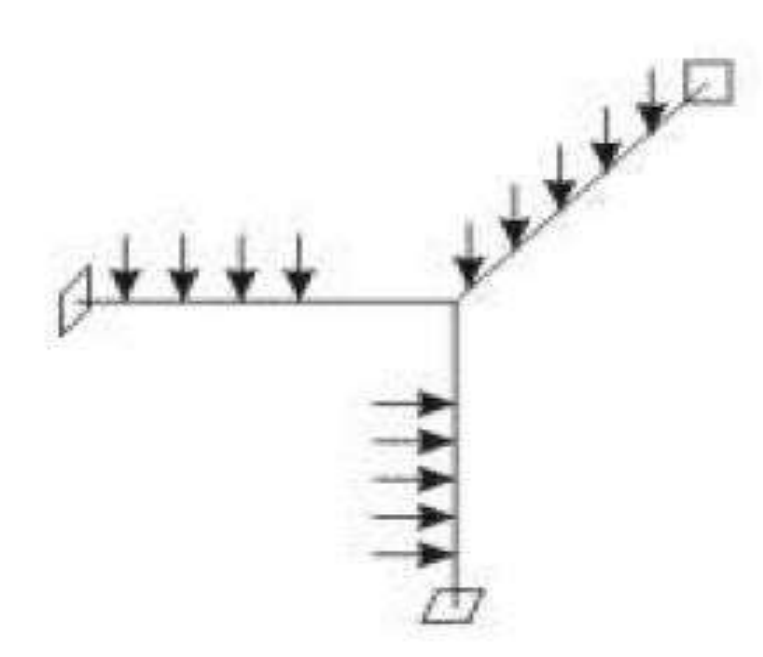
Fig. 3: Primary Torsion

Compatibility Torsion

- Secondary torsion is required to satisfy the compatibility condition between members.
- No specific design for torsion is necessary.



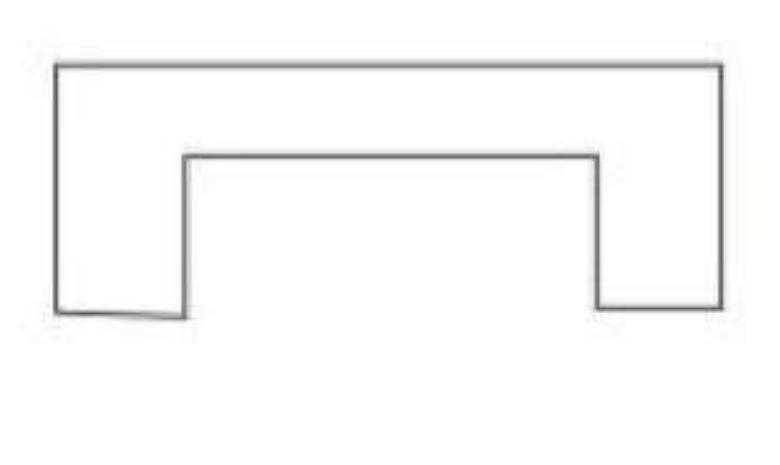


Fig. 4: Space Frames

Compatibility Torsion

- This is independent on torsion stiffness.
- They are not considered in design.
- IS codes controls compatibility torsion by the provision of minimum shear r/f.

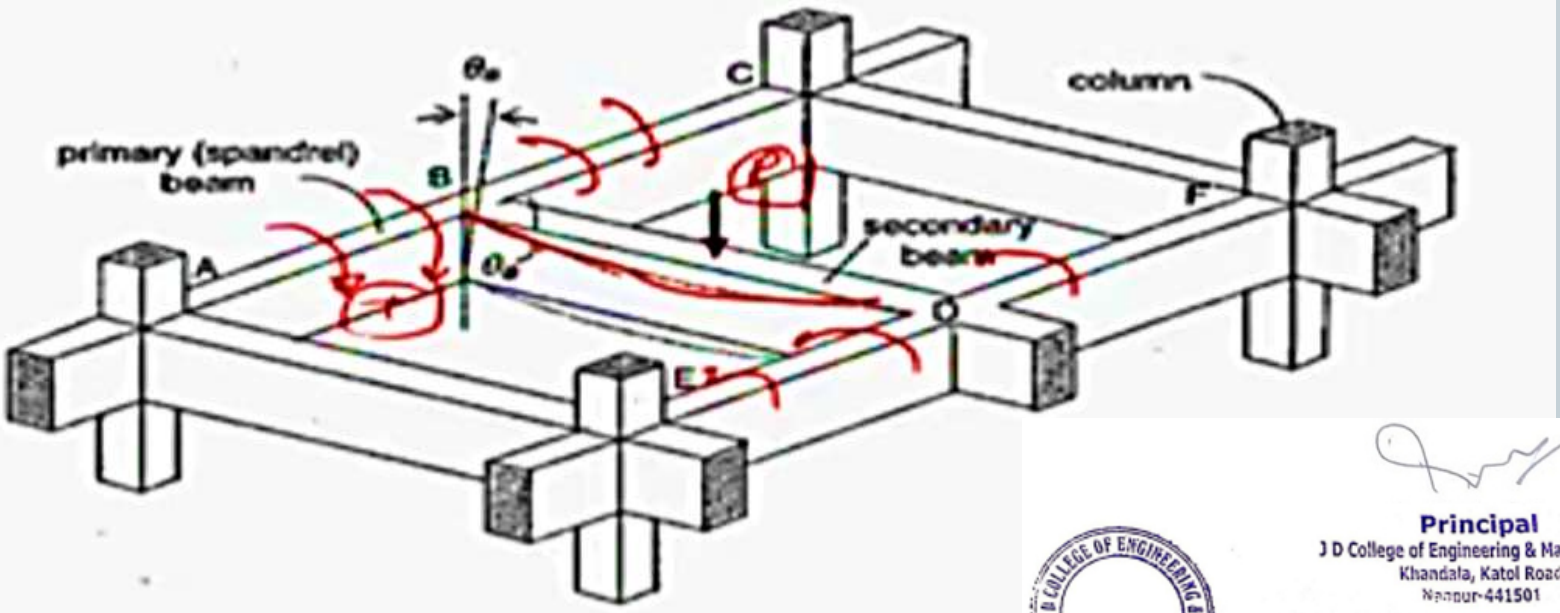
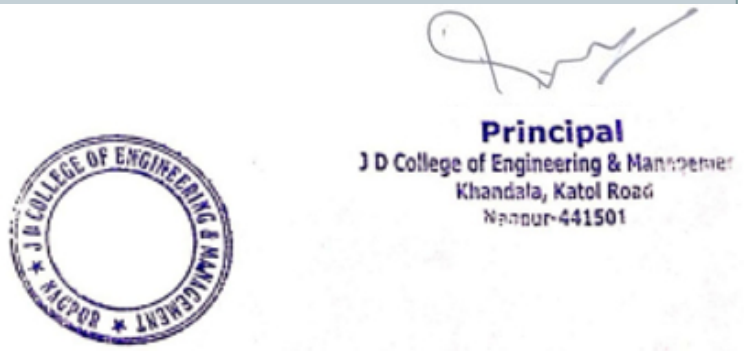


Fig. 6: Secondary Torsion

Behavior of R.C. Rectangular Sections subjected to Torsion

- Though shear and torsion both produced diagonal cracks in RC beam, behavior of RC beam subjected to torsion is different.
- Due to shear, crack propagates in the same direction on both sides of the beam.
- Whereas due to torsion spiral cracks propagate in the opposite direction on opposite sides of the beam.



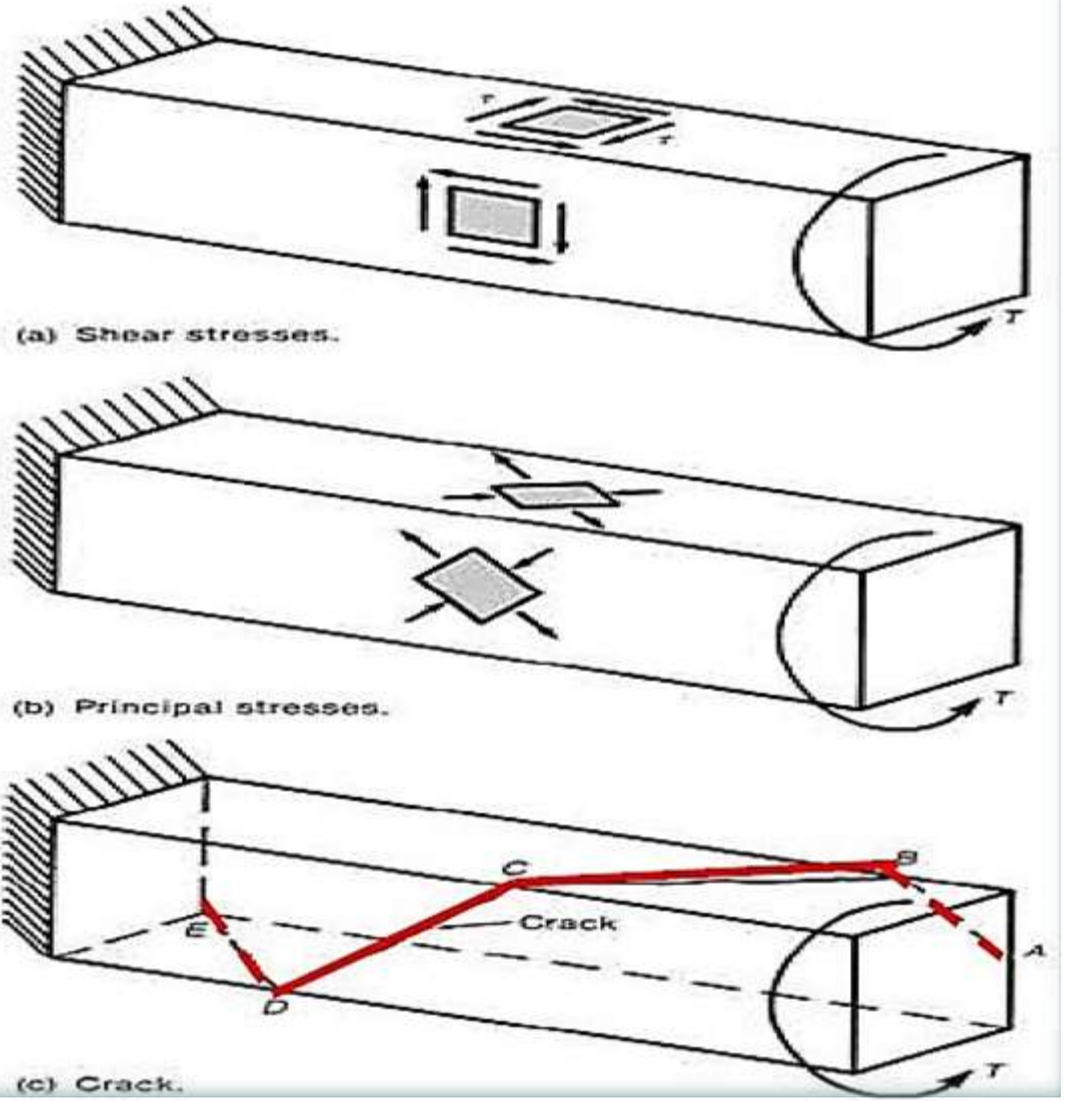
Behavior of R.C. Rectangular Sections subjected to Torsion

Torsional Cracks

- Pattern is Helical in shape.
- They can be present on all the four faces.

Crack Profile: A-B-C-D

- ED – Bottom Face
- DC – Front Face
- CB – Top Face
- BA – Back Face



Design of sections subjected to combined Bending and Torsion

- As per the stipulations of IS 456, the longitudinal and transverse reinforcements are determined taking into account the combined effects of bending moment, shear force and torsional moment.
- Two empirical relations of equivalent shear and equivalent bending moment are given.
- These fictitious shear force and bending moment, designated as Equivalent Shear and Equivalent Bending moment, are separate functions of actual shear and torsion, and actual bending moment and torsion, respectively.
- These design rules are applicable to beams of solid rectangular cross-section.

Equivalent Shear (Ve) : CL 41.3.1

a) The equivalent shear, a function of the actual shear and torsional moment is determined from the following empirical relation:

$$Ve = Vu + 1.6(Tu/b)$$

[Equivalent Shear = Actual Shear + Additional Shear]

where

Ve = Equivalent Shear,

Vu = Actual Shear,

Tu = Actual Torsional Moment,

b = Breadth of Beam.

Equivalent Shear (Ve) : CL 41.3.1

b) The equivalent nominal shear stress τ_{ve} is determined from:

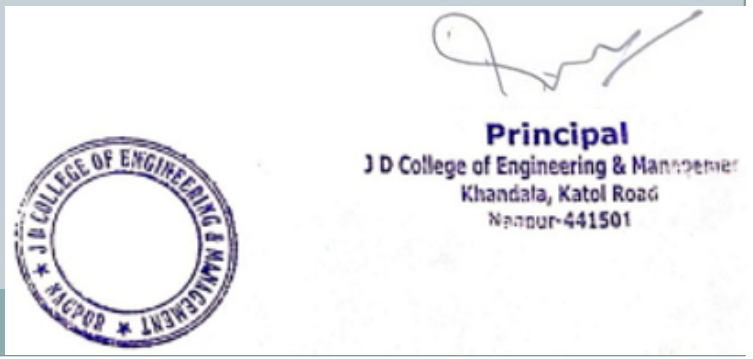
$$\tau_{ve} = Ve / bd$$

However, τ_{ve} shall not exceed τ_{cmax} given in Table 20 of IS 456 .

where

b = Breadth of Beam.

d = Eff. Depth of Beam.



Equivalent Shear (Ve) : CL 41.3.1

c) Minimum shear reinforcement is to be provided as per cl. 26.5.1.6 of IS 456, if the equivalent nominal shear stress τ_{ve} obtained does not exceed τ_c given in Table 19 of IS 456.

d) Both longitudinal and transverse reinforcement shall be provided as per cl. 41.4 and if τ_{ve} exceeds τ_c given in Table 19 of IS 456 and is less than τ_{cmax}, as mentioned in (b) above.

Equivalent Bending Moment (Me1): CL 41.4.2

a) Reinforcement for torsion shall consist of longitudinal and transverse reinforcement as mentioned in sec. (d).

b) The longitudinal flexural tension reinforcement shall be determined to resist an equivalent bending moment Me1 as given below:

$$Me1 = Mu + Mt$$

$$Me1 = Mu + (Tu/1.7)\{1 + (D/b)\}$$

[Equivalent Moment = Actual Moment + Additional Moment]

where

Mu = bending moment at the cross-section, and

Tu = torsional moment,

D = overall depth of the beam, and

b = breadth of the beam.

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Equivalent Bending Moment (Me1): CL 41.4.2

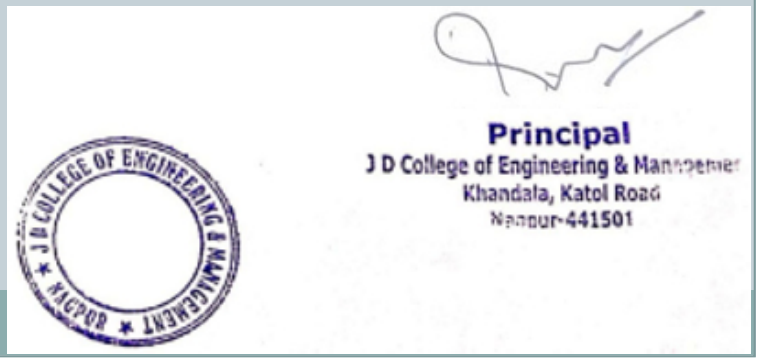
c) The longitudinal flexural compression reinforcement shall be provided if the numerical value of Mt as defined above in Eq exceeds the numerical value of Mu.

(if Mt > Mu)

Such compression reinforcement should be able to resist an equivalent bending moment Me2 as given below:

$$Me2 = Mt - Mu$$

The Me2 will be considered as acting in the opposite sense to the moment Mu.



Transverse Reinforcement (Asv):Cl.41.4.3, P.75

- Two legged closed hoops enclosing the corner longitudinal bars shall have an area of cross section, Asv, given by

$$A_{sv} = \frac{T_u s_v}{b_1 \, d_1 (0.87 \, f_y)} + \frac{V_u \, s_v}{2.5 d_1 (0.87 \, f_y)}$$

Where

Tu = Torsional Moment

Vu = Shear Forec

Sv = Spacing of Stirrups

b1 = c/c distance between the corner of bars in breadth direction.

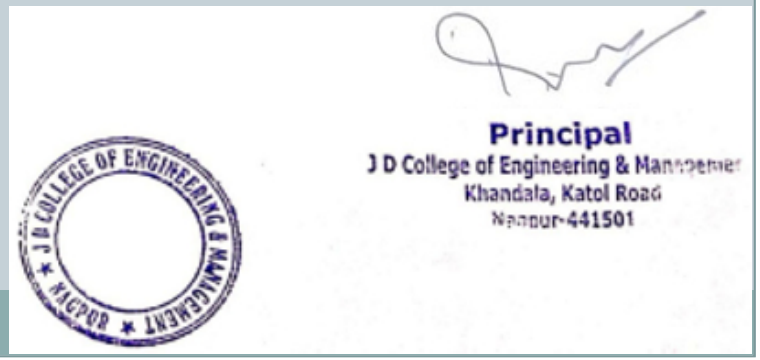
d1 = c/c distance between the corner of bars in depth direction.

Design for Torsion

1. Determine the reinforcement required for a rectangular beam section with following data:

   b = 300mm, D = 500mm, Factored B.M. = 80kN.m

   Factored Torsional Moment = 40 kN.m, Factored S.F. = 70 kN, M15 & Fe415.



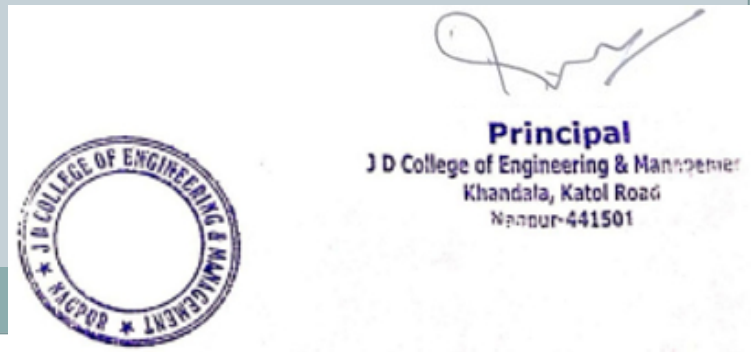
Examples

- A reinforced concrete rectangular beam b = 300 mm, d = 600 mm and D = 650 mm is subjected to factored shear force Vu = 70 kN in one section. Assuming the percentage of tensile reinforcement as 0.5 in that section, determine the factored torsional moment that the section can resist if

  (a)no additional reinforcement for torsion is provided,

  (b) maximum steel for torsion is provided in that section,

  Assume M 30 concrete.



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Department Of Electrical Engineering
"Igniting minds to illuminate the world"
2020-21 (Odd Sem)

VISION	MISSION
"To develop competent and committed Electrical Engineers to serve the society"	1. To impart quality education in the field of Electrical Engineering. 2. To be excellent learning centre through research and industry interaction.

Subject – High Voltage Engineering

7th Sem EE

Topic - Arrester

Different terms used for arresters are sometimes confusing even professional engineers and electricians use them interchangeably.

The main difference between the different types of arresters such as surge arrester, lightning arrester, surge suppressor and lighting rod as sometimes, they may used for same purpose. The difference shows that what kind of system you want to protect from what and how?

Let's see the basic definitions of the following arresters. We will discuss all of them in details below.

- **Surge Arrester:** is a device used to protect the electrical installations and equipment from electrical surges and transient voltage caused by electrical faults, switching, short circuits, sparks and lightning etc. Surge arresters are installed inside the panels to cancel out the surges.

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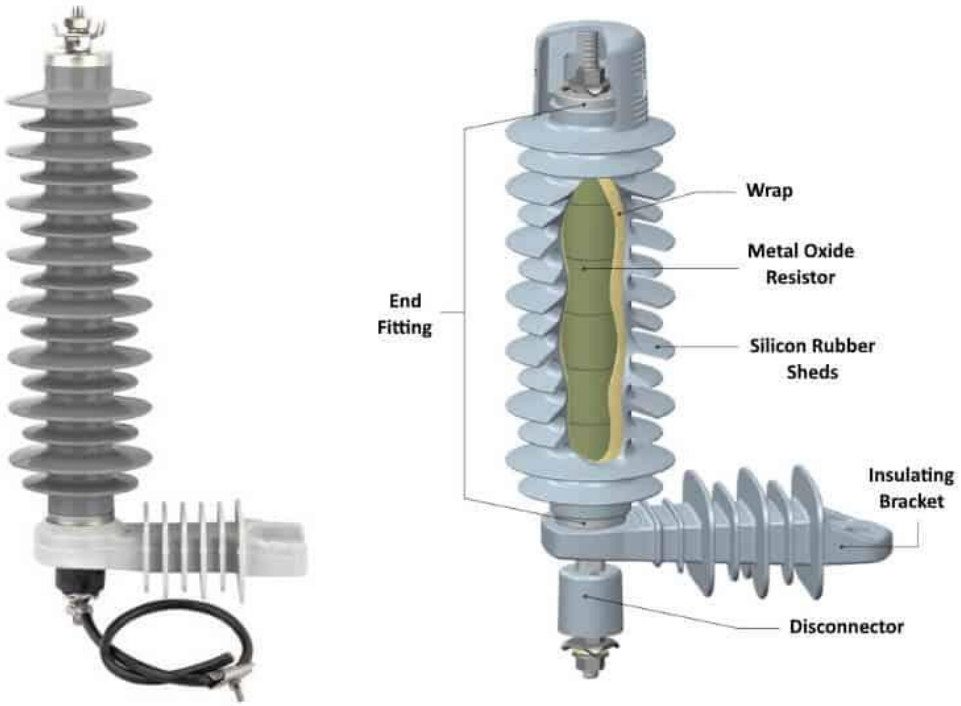
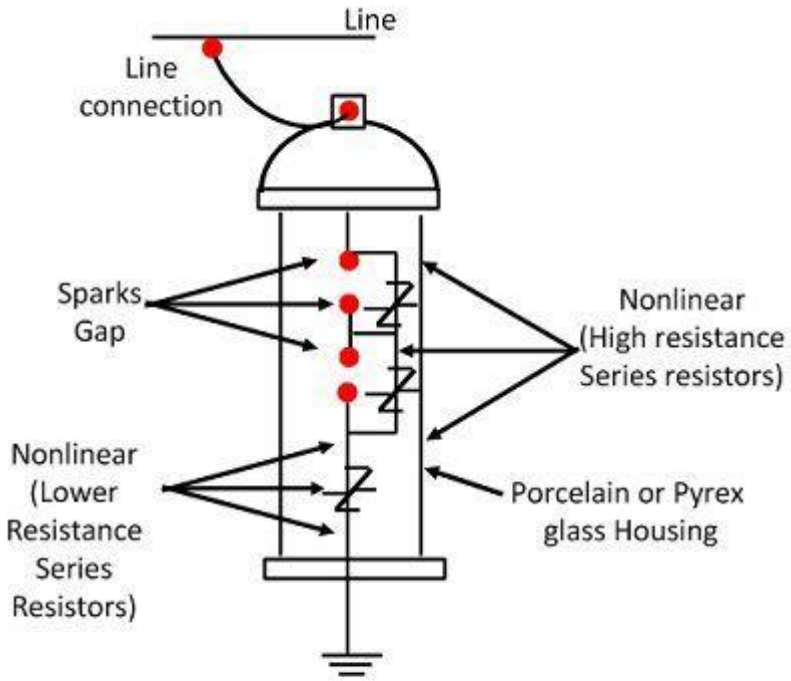


Surge Arrester

- **Lightning Arrester:** is a device used to protect the electric circuit and connected devices from the lightning strikes having high voltage transient surges. Lightning arresters are installed outside to ground the harmful effects of lightning spikes.



Valve Type Lightning Arrester

-

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- **Surge Suppressor:** Also known as transient suppressor or surge protector is a device installed in the home panel board to protect the connected circuits from electric surges and voltage spikes known as transients.

Surge Suppressor

- **Lightning Rod:** It is a device installed on the height location i.e. top of the building and transmission towers to provide a path to ground the lightning strokes. The lightning rod protects the structure from lighting surges.

Lightning Rod

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Note: A surge arrester can be used as a lightning arrester but lightning arrester can't be used as a surge arrester.

Main Differences between Surge Arrester and Lightning Arrester

- Surge arrester installed inside the panel board while lightning arrester are installed outside.
- Surge arrester protects the installation from inside while lightning arrester protects the equipment from outside.
- Surge arrester protects the system from lightning, switching, electrical faults and other transients voltage and surges while lightning arrester are mainly used for lightning strikes and associated surges.
- Surge arrester intercepts the surges and send the extra unwanted energy to the ground wire while lightning arrester divert the energy flow to the ground through the arrester to the ground.
- Surge arrester can be used as a lighting arrester while lighting arrester can't be used as a surge arrester.

Types of a Lightning Arrester

Let us discuss some types of lightning arresters. The choice of lightning arrester depends upon the following factors:

- Voltage
- Current
- Reliability
- Space available for installation, etc

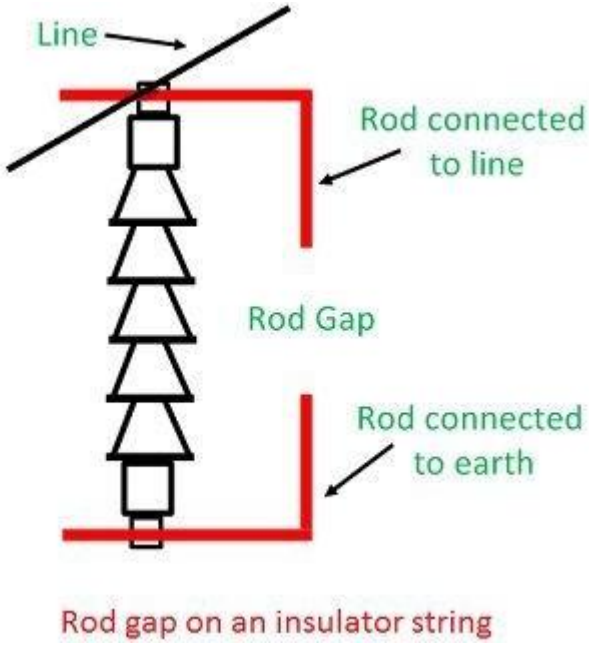
Heeding these above factors, there are twelve types of lightning arresters.

- Rod Gap Arrester
- Sphere Gap Arrester
- Horn Gap Arrester
- Multiple-Gap Arrester

- Impulse Protective Gap Arrester
- Electrolytic Arrester
- Expulsion Type Lightning Arrester
- Valve Type Lightning Arresters
- Thyrite Lightning Arrester
- Auto valve Arrester
- Oxide Film Arrester
- Metal Oxide Lightning Arrester

Let us focus on some primary and important types of Arresters.

Rod Gap Arrester

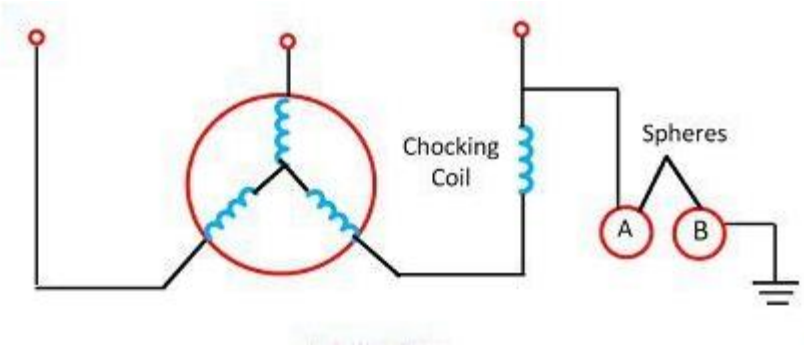


Rod Gap Arrester

It is one of the simplest types of **Lightning Arresters**. In the before-mentioned type, there is a gap between the end of the two rods. These two rods are connected to the earth and the line directly. The gap is filled with air.

When there is a higher voltage on the line the air ionizes producing a spark. In this fashion, the fault current passes to the earth. The process is explicated above in the snippet. Hence the equipment is saved from potential damage.

Sphere Gap Arrester

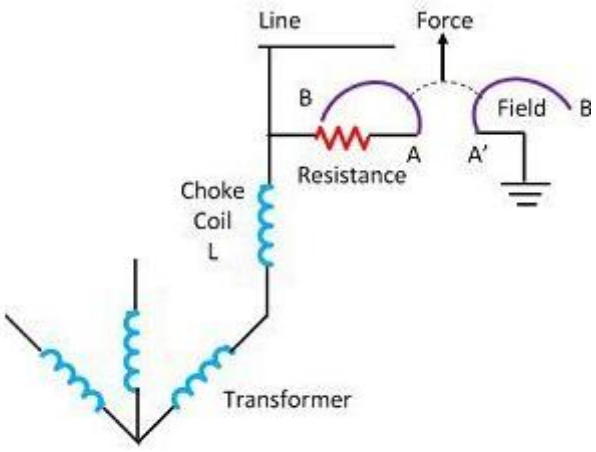


Sphere Gap Arrester

In such types of lightning arresters, an air gap is provided between two spheres. Here, one of the spheres is grounded and another is connected to the line. The diagram below represents the process in detail.

There is a choking coil between the transformer and the ground which heats up when the voltage rises. The air between the spheres heats up and tries to escape. But the corona discharge mechanism ionizes the air and the fault current passes through it. Thus, it saves potential damage to the device.

Horn Gap Arrester

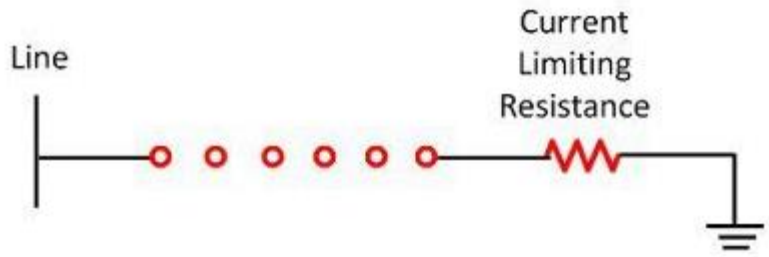


Horn Gap With Choke Coil and Resistance

This contains two horn-shaded pieces of metal. These two are separated by a small air gap and connected in a shunt between each conductor and earth. The distance between the two electrodes is optimum. This distance is filled with air that ionizes on fault current passage.

Hence the fault current is passed to the earth and the inherent damage is stopped.

Multiple Gap Arrester



Multiple gap arrester

The schematic diagram above shows the details in brief. It consists of a small series of insulated through an air gap. The number of gaps depends upon the voltage. The gaps protect the device through the corona discharge. In it, air ionizes, and fault current passes through the ground. A resistor is added to stop the fault current even further.

Electrolytic Arrester

It has a high discharge capacity. It operates on the basic principles of an electrolytic cell. Expressly, here aluminum hydroxide deposits on the aluminum plates. The plate acts as a high resistor to a low voltage value and vice versa for a critical value.

A voltage of more than 400 volts punctures the impedance. Hence the fault current passes to the ground.

Thyrite Lightning Arrester

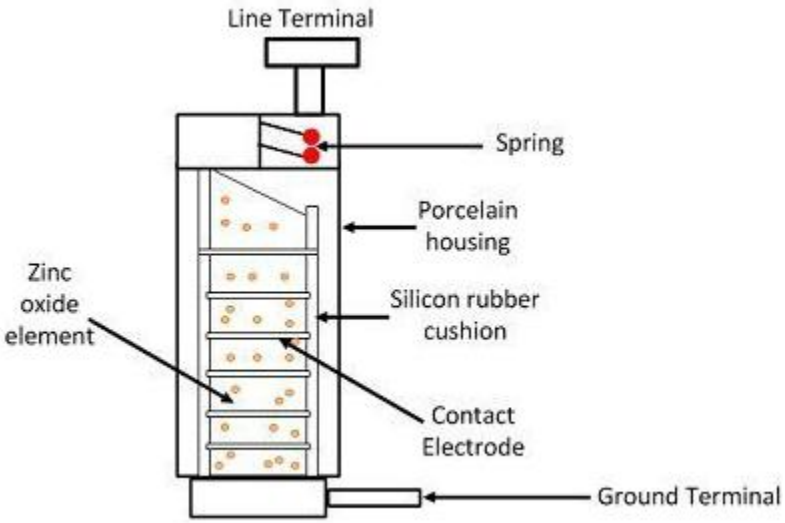
These types of lightning arresters are commonly used for extremely high voltage conditions. It consists of a ceramic material called Thyrite which has a variable resistance. The resistance is inversely proportional to the voltage applied at the ends of it.

It contains a disc that is made conductive at both sides by spraying some conducting material. The disc is contained inside a translucent porcelain container. It is used as a joint in the container.

When the lightning takes place the voltage gap is filled through the breakdown of gaps. This saves the device from implied damage.

Metal Oxide Lightning Arrester

It is also called Zinc Oxide diverter. The schematic diagram below shows the process in detail.



These types of diverters are known as gapless surge diverters. The base material here is zinc and the oxide manufactured is zinc oxide. It is a semiconducting material. This material is anesthetized by adding fine powders of insulating oxides.

This powder is treated and then stuffed into a disc-shaped structure. The disc is then enclosed in an earthenware housing filled with sulfur hexafluoride.

Thus, the arrester consists of a potential obstacle at the edges of zinc oxide. This potential barrier constrains the river and pathways of the current. At normal conditions, it stops the flow of current. But, when there is a potential breakage the barrier collapses and the fault current passes to the ground.

Thus, this stops the surge from damaging any device.

Lightning Arrester for building

A lightning arrester rod is a metallic arrangement that is used to protect a building from lightning and its surges. The lightning arrester for buildings is made from conducting metals like copper, iron. And alloys like brass mild steel etc. Therefore it has a high earth coverage of around 60 meters.

Lightning Arrester installation

A lightning arrester installation must use the given guidelines:

- The top of the terminal should be established at least 2 meters over the area that it shields.
- Each lightning rod should be blended with at least two down conductors.
- The bend radii must be less than 20 cm.
- Down-conductors shall be placed rather at the external part of the fabrication.
- The in-house resistance should be as low as possible (say less than 10 Ohms).
- All earthing equipment for a specific structure should be interconnected.
- Minerals should be added to lower soil resistivity (say Backfill compound).

Comparison: Lightning Arrester VS Surge Arrester

The main functions of the **Surge Arrester** are:

- It protects the installation from inside.

- The surge protector protects the system from lightning, switching, electrical faults, and other transient voltages and surges.

While the main functions of the **Lightning Arrester** are:

- It protects the system from the outside.
- Lightning arresters are mainly used for lightning strikes and associated surges.

Lightning Arrester Types & Working

The lightning arresters are used to protect power system from high voltage surges. The function of the surge arrester is to allow the discharge of any dangerous over-voltage before it can do damage and then to restore the line to normal operation after the discharge.

Lightning Arrester Types

The most commonly used *lightning arrester types* are as under:

- Rod gap arrester
- Expulsion type lightning arrester
- Valve type lightning arrester
- Metal oxide varistor lightning arrester

Lightning Arrester Working Principle

When a voltage surge traveling along the conductor reaches the point at which a lightning arrester is installed it breaks down the insulation of the arrester momentarily, allowing the voltage surge to discharge to ground.

As soon as the system voltage drops below the predetermined value, insulation between the conductor and ground is restored and further current flow to ground stops.

To perform this protective function satisfactorily, arresters must:

- Not allow current to flow to the ground as long as the system voltage remains normal.
- Provide a path to ground, when the system voltage rises to a predetermined valve above normal, to dissipate the energy from the surge without raising the voltage at which the circuit is operating.
- Stop the flow of current to ground, as soon as the system voltage drops below the predetermined value, and restore the insulating qualities between the conductor and ground.
- Not be damaged by the discharge and be capable of automatically repeating discharging process frequently when required.

The performance of any arrester is dependent on a good connection to ground. Arresters will not function without a proper ground; they are totally useless. The arrester should be placed as close as possible to the equipment, that is to be protected and leads connecting arresters to ground should be kept as short as possible.

Rod gap Lightning Arrester

It is the simplest type of lighting arrester. It consist two-rod electrodes, one of which is connected to the line and other to earth. The rods may be in the form of horn also. These are generally to used to protect the transformers.

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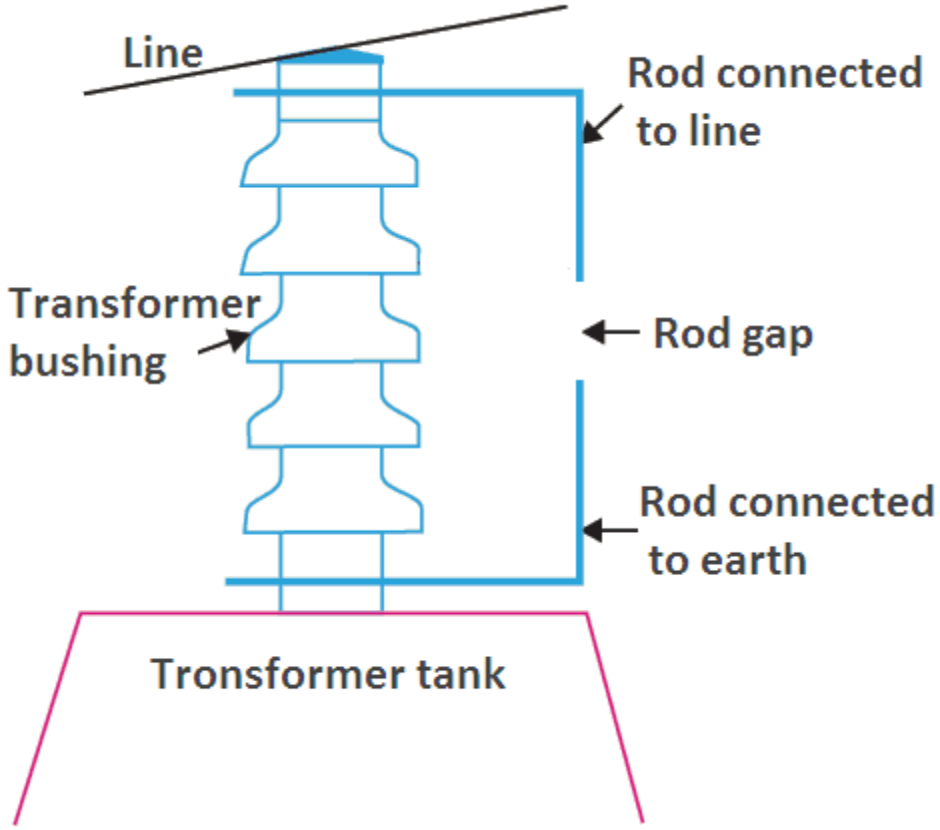


Under normal operating conditions, the gap remains non-conducting. When a high voltage surge occurs, the gap sparks over and surge current is drained to earth. Such arresters suffer from the following disadvantages:

- The operation is affected by climatic conditions.
- After the surge is over, due to ionization of air, the arc in the gap is maintained even at the normal supply voltage.
- Increased possibility of bird faults.

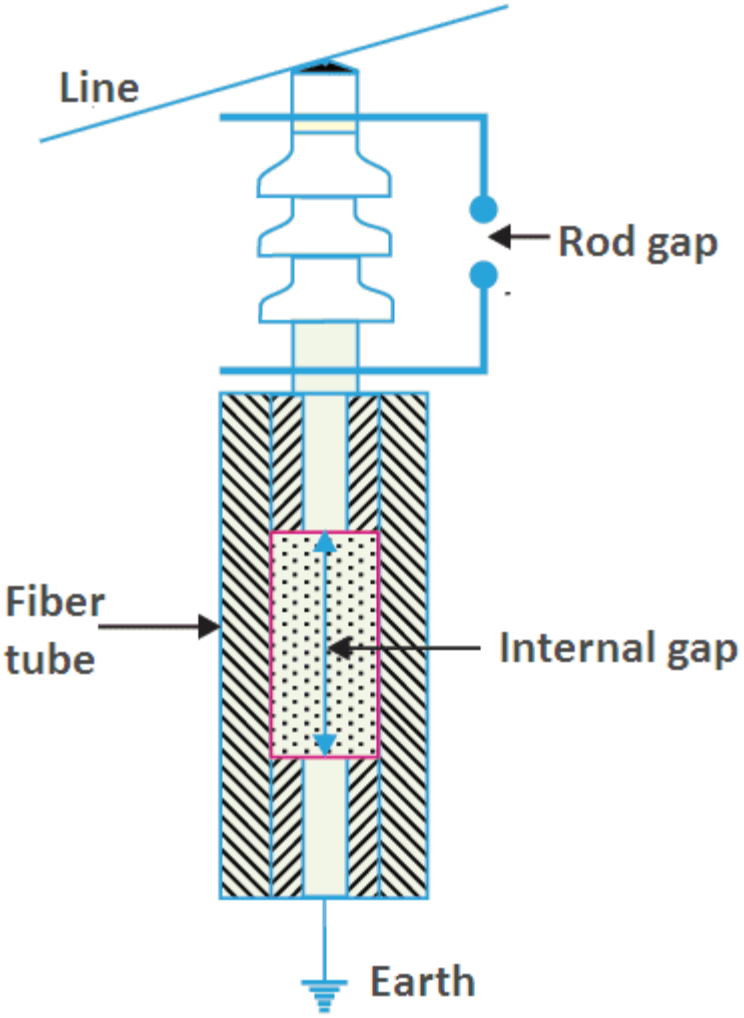
Due to the above disadvantages, the rod gap arresters are used only as a 'back-up' protection with main arrestors.

Expulsion Type Lightning Arrester

It consists of an arc extinguishing chamber in series with an air gap. The arc extinguishing chamber is in the form of fiber tube which interrupts the arc after discharging the surge by the generation of gasses.

When a voltage surge occurs that is sufficient to spark over the series gap and the gap in the fiber tube, discharge current flows to ground. The arc in the tube attacks some of the fiber of tube walls, releasing a large amount of a relatively cool, non-conducting gas.

The gas produced in fiber tube acts not only to extinguish the arc but also builds up high pressure and expelled through the lower electrode which is hollow. As the gas leaves the tube violently, it wipes out the ionized air around the arc. Due to this strong deionization effect, arc goes out at current zero instant and will not be re-established.



Expulsion type arrester

An expulsion type lightning arrester has a current rating in addition to the voltage rating. The maximum current rating must be equal to the short-circuit current available at the point of installation. These are generally used on towers for the protection of transmission lines.

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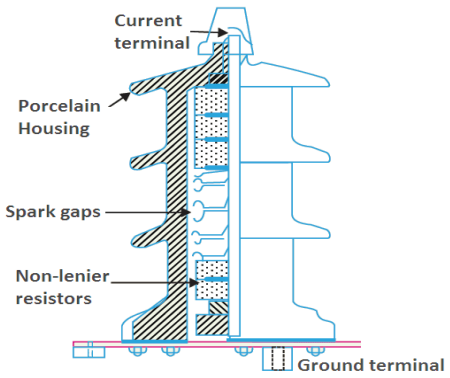
Valve Type Lightning Arrester

It consists of an outer ceramic body containing a set of resistances (valves) and spark gaps in series. The resistances are made of a special silicon carbide ceramic.

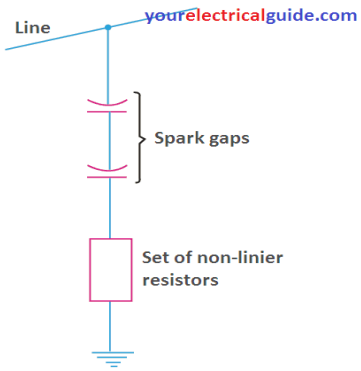
It possesses the characteristic of being substantially an insulator at one voltage and then changing to an excellent conductor at a higher voltage; the transition is due to voltage changes only, not to heat as in other valve materials. High-voltage surges spark across the air gap and discharge current flows through the valve to ground.

Since the valve has a low resistance under high voltage and a high resistance at a normal voltage so as soon as system voltage becomes normal current flow stops. The arc gets extinguished and the arrester regains its original state.

The valve type arrestors are extensively used for the protection of generating stations, sub-stations, overhead lines, cables and rotating machinery.



Valve type arrester



Equivalent Circuit

They are rated for voltage only and are designated as 70%, 80%, and 100% arresters. The 80% arresters are suitable for solidly grounded systems. Whereas, 100% arresters are used on systems with isolated neutrals or those earthed through impedances.

The valve type arresters have been classified into the four types as under:

- Secondary Type
- Distribution Type
- Line Type
- Station Type

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Secondary type lighting arresters are used with medium voltage apparatus, where the equipment is installed in farms and other lightning-prone areas.

Distribution type arresters are used on lines and substations up to 22 kV.

Line type arresters are normally used for voltages up to 66 kV though they can be used for higher voltages also.

Station type arresters provide the highest degree of protection and should be used where the cost of the protected equipment or the importance of service continuity justifies the extra investment on their account.

Metal Oxide Lightning Arrester

A metal oxide varistor (MOV) lightning arrester consists a series of metal oxide varistor blocks. These MOV blocks acts like a voltage-controlled switch.

When the applied voltage across the arrester increases above the rated voltage of the arrester, the MOV starts conducting and excessive energy is drained to the ground. This process continues until the system attains the normal voltage. As soon as the system voltage becomes normal the conduction stops.

The MOV arrester is the one of the most commonly used arrester for the protection of modern power system. They don't have gaps. This "gap-less" design eliminates the generation of excessive heat during the operation of the arrester.

They give best performance as the surge voltage conduction starts and stops very quickly at a precise voltage level. This reduces the failure of the arrester and improves system reliability and protection.

Subject Teacher

HOD EE

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Department of Mechanical Engineering

Education to Eternity

Session 2020-21

Lecture Notes (Strength of Materials)

VISION	MISSION
To be a centre of excellence of learning and research in Mechanical Engineering."	1. To provide high quality, innovative and research environment in Mechanical Engineering. 2. To impart soft skills and hard skills to achieve the institutional vision

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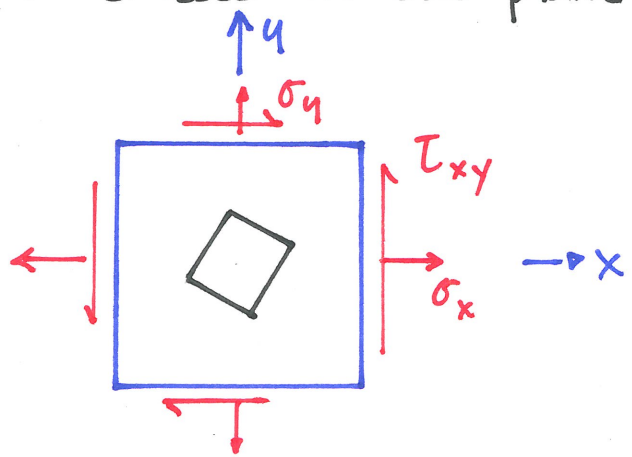
- in general, consider element in plane stress
- all stresses in one plane; usually take to be x-y plane $\sigma_z = 0$ $\sigma_{xz} = 0$ $\sigma_{yz} = 0$



(shear stress often τ_{xy})

what is equivalent stress state on rotated element?

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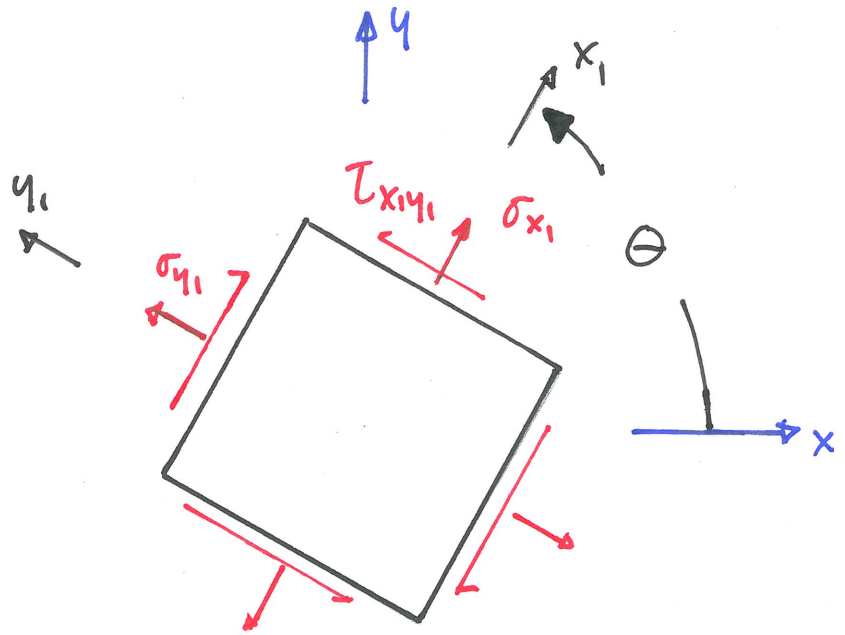


θ positive counterclockwise (ccw)

define x_1, y_1 axes rotated by θ ccw with respect to xy axes.

$$\sigma_{x1} = f_1(\sigma_x, \sigma_y, \tau_{xy}, \theta)$$

$$\sigma_{y1} = f_2(\sigma_x, \sigma_y, \tau_{xy}, \theta)$$

$$\tau_{x1y1} = f_3(\sigma_x, \sigma_y, \tau_{xy}, \theta)$$

---

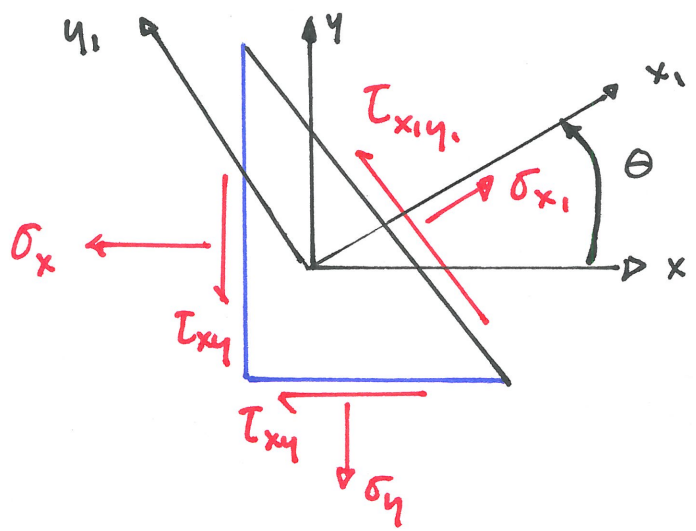
① want to find these relationships

② want to find maximum normal stress]

③ " " " minimum " "] "principal stresses"

④ " " " maximum shear stress

· Consider static equilibrium of a wedge:



AREA OF LEFT FACE = A_o

AREA OF BOTTOM FACE = $A_o \tan\theta$

AREA OF INCLINED FACE = $\frac{A_o}{\cos\theta}$

$\Sigma F_x = 0$ $\quad \Sigma F_y = 0$ $\quad$ Algebra, Trig identities see Gere + Goodno p 592-93

$$\sigma_{x1} = \frac{\sigma_x + \sigma_y}{2} + \left(\frac{\sigma_x - \sigma_y}{2}\right)\cos 2\theta + \tau_{xy}\sin 2\theta$$

$$\tau_{x1y1} = -\left(\frac{\sigma_x - \sigma_y}{2}\right)\sin 2\theta + \tau_{xy}\cos 2\theta$$

σ_{y1} obtained from eq'n for σ_{x1} with $\theta = \theta + 90°$

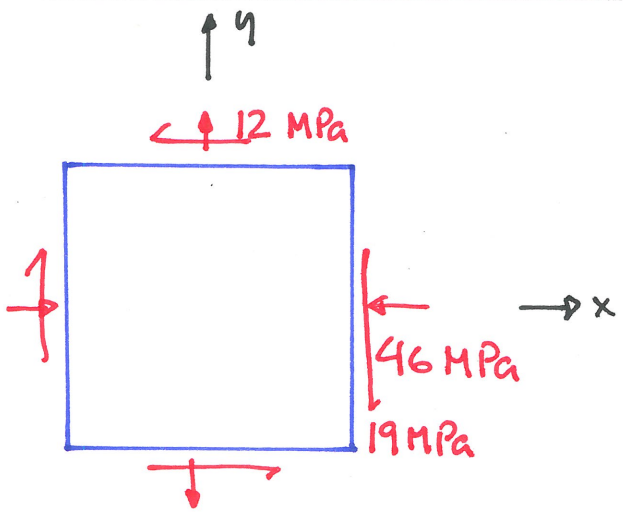
$$\sigma_{y1} = \left(\frac{\sigma_x + \sigma_y}{2}\right) - \left(\frac{\sigma_x - \sigma_y}{2}\right)\cos 2\theta - \tau_{xy}\sin 2\theta$$

Note also: $\sigma_{x_1} + \sigma_{y_1} = \sigma_x + \sigma_y$

- sum of normal stresses acting on two ⊥ faces of an element
  - In plane stress is constant, independent of θ

Example:

- element sees stress state shown below
- calculate stress state on element rotated 15° CW
- sketch stresses on rotated element.

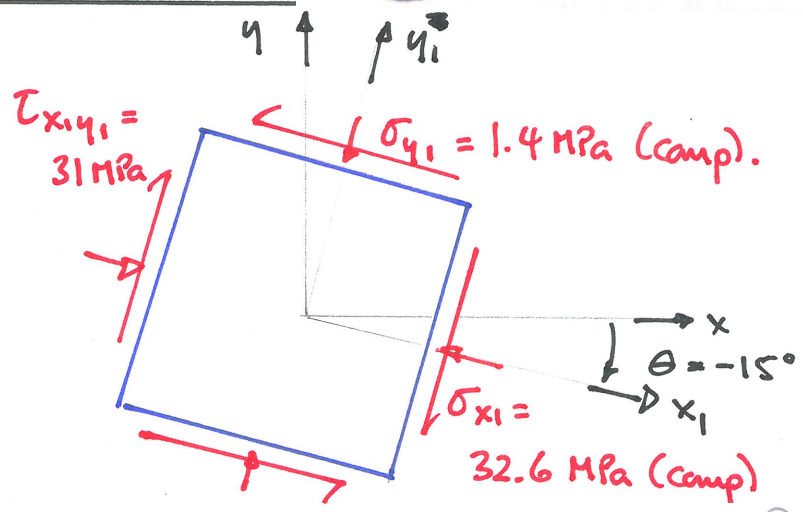


$\sigma_x = -46$ MPa

$\sigma_y = 12$ MPa

$\tau_{xy} = -19$ MPa

$\theta = -15°$



$\sigma_{x_1} = -32.6$ MPa

$\sigma_{y_1} = -1.4$ MPa

$\tau_{x_1y_1} = -31.0$ MPa

$$\frac{\sigma_x + \sigma_y}{2} = \frac{-46+12}{2} = -17 \text{ MPa} \qquad \sin 2\theta = \sin(-30) = -0.5$$

$$\frac{\sigma_x - \sigma_y}{2} = \frac{-46-12}{2} = -29 \text{ MPa} \qquad \cos 2\theta = \cos(-30) = 0.866$$

$$\sigma_{x_1} = \left(\frac{\sigma_x+\sigma_y}{2}\right) + \left(\frac{\sigma_x-\sigma_y}{2}\right)\cos 2\theta + \tau_{xy}\sin 2\theta$$

$$= -17 + (-29)(0.866) + (-19)(-0.5)$$

$$= -32.6 \text{ MPa}$$

$$\tau_{x_1y_1} = -\left(\frac{\sigma_x-\sigma_y}{2}\right)\sin 2\theta + \tau_{xy}\cos 2\theta$$

$$= -(-29)(-0.5) + (-19)(0.866)$$

$$= -31.0 \text{ MPa.}$$

$$\sigma_{y_1} = \frac{\sigma_x+\sigma_y}{2} - \left(\frac{\sigma_x-\sigma_y}{2}\right)\cos 2\theta - \tau_{xy}\sin 2\theta$$

$$= -17 - (-29)(.866) - (-19)(-0.5)$$

$$= -1.4 \text{ MPa}$$

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Note: $\sigma_{x_1} + \sigma_{y_1} = -32.6 - 1.4$

$= -34 \text{ MPa}$

$\sigma_x + \sigma_y = -46 + 12$

$= -34 \text{ MPa}$

Principal stresses

- for failure, interested in maximum values of normal + shear stresses.
- maximum normal stress } " Principal stresses "
  minimum normal stress }

$$\sigma_{x_1} = \frac{\sigma_x + \sigma_y}{2} + \left(\frac{\sigma_x - \sigma_y}{2}\right) \cos 2\theta + \tau_{xy} \sin 2\theta$$

set $\frac{d\sigma_{x_1}}{d\theta} = 0$ to find θ at which σ_{x_1} max. or min.

$$\frac{d\sigma_{x_1}}{d\theta} = (-2)\left(\frac{\sigma_x - \sigma_y}{2}\right) \sin 2\theta_p + 2\tau_{xy} \cos 2\theta_p = 0$$

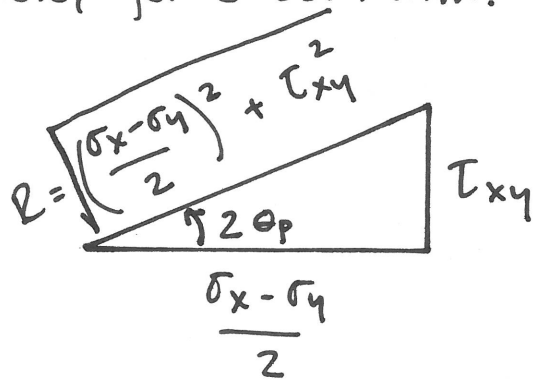
$$\boxed{\tan 2\theta_p = \frac{2\tau_{xy}}{\sigma_x - \sigma_y}}$$

θ_p - angle of rotation of principal planes, on which principal stresses act

- two values that differ by 90° (2 ⊥ planes)
- One value between 0 & 90°
- " " " 90° & 180°

- one value min. normal stress, σ_2

- values for principal stresses found by substituting for θ_p in σ_{x1} eqn.
- note, for substitution:



$$\tan 2\theta_p = \frac{2\tau_{xy}}{\sigma_x - \sigma_y}$$

R = positive root

$$\cos 2\theta_p = \frac{\sigma_x - \sigma_y}{2R} \qquad \sin 2\theta_p = \frac{\tau_{xy}}{R}$$

- substituting into σ_{x1}:

$$\sigma_{x1}\ (\theta = \theta_p) = \sigma_1 = \frac{\sigma_x + \sigma_y}{2} + \frac{\sigma_x - \sigma_y}{2}\cos 2\theta_p + \tau_{xy}\sin 2\theta_p$$

$$= \frac{\sigma_x + \sigma_y}{2} + \left(\frac{\sigma_x - \sigma_y}{2}\right)^2 \frac{1}{R} + \frac{\tau_{xy}^2}{R}$$

$$= \frac{\sigma_x + \sigma_y}{2} + \frac{R^2}{R}$$

$$= \frac{\sigma_x + \sigma_y}{2} + \sqrt{\left(\frac{\sigma_x - \sigma_y}{2}\right)^2 + \tau_{xy}^2}$$

- min. value of principal stress acts on a plane normal to σ_1 ; called σ_2

$$\sigma_1 + \sigma_2 = \sigma_x + \sigma_y$$

$$\sigma_2 = \sigma_x + \sigma_y - \sigma_1$$

$$= \sigma_x + \sigma_y - \left[\frac{\sigma_x + \sigma_y}{2} + \sqrt{\left(\frac{\sigma_x - \sigma_y}{2}\right)^2 + \tau_{xy}^2} \right]$$

$$= \frac{\sigma_x + \sigma_y}{2} - \sqrt{\left(\frac{\sigma_x - \sigma_y}{2}\right)^2 + \tau_{xy}^2}$$

- principal stresses given by:

$$\sigma_{1,2} = \frac{\sigma_x + \sigma_y}{2} \pm \sqrt{\left(\frac{\sigma_x - \sigma_y}{2}\right)^2 + \tau_{xy}^2}$$

- to match θ_p with σ_1 or σ_2 , substitute θ_p into eqn for σ_{x1}

if $\sigma_{x1} = \sigma_1$ θ_p corresponds to σ_1

if $\sigma_{x1} = \sigma_2$ θ_p " " σ_2

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Also, we can calculate shear stresses on principal planes

$$(\tau_{x_1y_1})_p = -\left(\frac{\sigma_x - \sigma_y}{2}\right) \sin 2\theta_p + \tau_{xy} \cos 2\theta_p$$

$$= -\left(\frac{\sigma_x - \sigma_y}{2}\right) \frac{\tau_{xy}}{R} + \tau_{xy} \left(\frac{\sigma_x - \sigma_y}{2R}\right)$$

$$= 0$$

- Shear stresses are always zero on principal planes

Maximum shear stress

- find rotation of plane on which shear stress is maximum

  by setting $d\tau_{x_1y_1}/d\theta = 0$

$$\tau_{x_1y_1} = -\left(\frac{\sigma_x - \sigma_y}{2}\right)\sin 2\theta + \tau_{xy}\cos 2\theta$$

$$\frac{d\tau_{x_1y_1}}{d\theta} = -(\sigma_x - \sigma_y)\cos 2\theta_s - 2\tau_{xy}\sin 2\theta_s = 0$$

$$\tan 2\theta_s = -\left(\frac{\sigma_x - \sigma_y}{2\tau_{xy}}\right)$$

θ_s = angle of rotation of plane on which τ_{xy} max or min

- one value between 0 & 90°, one value between 90° & 180°
- two values separated by 90°; act on 2 ⊥ planes
- τ on ⊥ planes equal in magnitude, different in direction

Max shear stress

$$\tan 2\theta_s = -\cot 2\theta_p = \tan(2\theta_p \pm 90^\circ)$$

$$\therefore 2\theta_s = 2\theta_p \pm 90^\circ$$

$$\theta_s = \theta_p \pm 45^\circ$$ ⇒ planes of τ_{max} at 45° to principal planes

If θ_{p_1} = angle of rotation of plane of max. normal stress, σ_1

& θ_{s_1} = " " " " " " shear " (pos. τ)

$$\theta_{s_1} = \theta_{p_1} - 45^\circ$$

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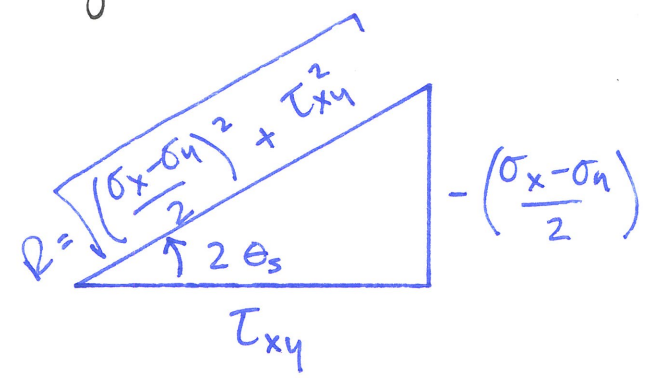
magnitude of max shear stress given by: substitution



$$\sin 2\theta_s = -\left(\frac{\sigma_x-\sigma_y}{2R}\right)$$

$$\cos 2\theta_s = \frac{\tau_{xy}}{R}$$

$$\tau_{x_1y_1,\ max}\ (\theta=\theta_s) = -\left(\frac{\sigma_x-\sigma_y}{2}\right)\sin 2\theta_s + \tau_{xy}\cos 2\theta_s$$

$$= \left(\frac{\sigma_x-\sigma_y}{2}\right)^2 \frac{1}{R} + \frac{\tau_{xy}^2}{R} = \frac{R^2}{R} = R$$

$$\tau_{max} = \sqrt{\left(\frac{\sigma_x-\sigma_y}{2}\right)^2 + \tau_{xy}^2}$$

also, can show $\tau_{max} = \dfrac{\sigma_1-\sigma_2}{2}$

On planes of max shear stress, also have normal stress

$$\sigma_{x_1}\,(\theta=\theta_s) = \frac{\sigma_x+\sigma_y}{2} + \left(\frac{\sigma_x-\sigma_y}{2}\right)\cos 2\theta_s + \tau_{xy}\sin 2\theta_s$$

$$= \frac{\sigma_x+\sigma_y}{2} + \left(\frac{\sigma_x-\sigma_y}{2}\right)\frac{\tau_{xy}}{R} \mp \tau_{xy}\left(\frac{\sigma_x-\sigma_y}{2R}\right)$$

$$= \frac{\sigma_x+\sigma_y}{2}$$

- Similarly for $\sigma_{y_1}(\theta=\theta_s) = \frac{\sigma_x+\sigma_y}{2}$

- normal stesses σ_{x_1}, σ_{y_1} on planes of max. shear stress are equal

$$\sigma\,(\theta=\theta_s) = \frac{\sigma_x+\sigma_y}{2}$$

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Summary

Principal stresses

$$\sigma_{1,2} = \frac{\sigma_x + \sigma_y}{2} \pm \sqrt{\left(\frac{\sigma_x - \sigma_y}{2}\right)^2 + \tau_{xy}^2}$$

$$\tan 2\theta_p = \frac{2\tau_{xy}}{\sigma_x - \sigma_y}$$

$\tau_{x,y_1} = 0$ on principal planes

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Academic Year 2020-21

MBA Semester- IV

Sub: FM4: MANAGING BANKS AND FINANCIAL INSTITUTIONS

Subject Code: (4T1)

MODULE 1

INTRODUCTION TO FINANCIAL SYSTEM

The economic development of a nation is reflected by the progress of the various economic units, broadly classified into corporate sector, government and household sector. There are areas or people with surplus funds and there are those with a deficit. A financial system or financial sector functions as an intermediary and facilitates the flow of funds from the areas of surplus to the areas of deficit. A Financial System is a composition of various institutions, markets, regulations and laws, practices, money manager, analysts, transactions and claims and liabilities.

Financial system comprises of set of subsystems of financial institutions, financial markets, financial instruments and services which helps in the formation of capital. It provides a mechanism by which savings are transformed to investment.

THE CONCEPT OF THE FINANCIAL SYSTEM

The process of savings, finance and investment involves financial institutions, markets, instruments and services. Flow of Funds through Financial System can be understood with the help of the following diagram:

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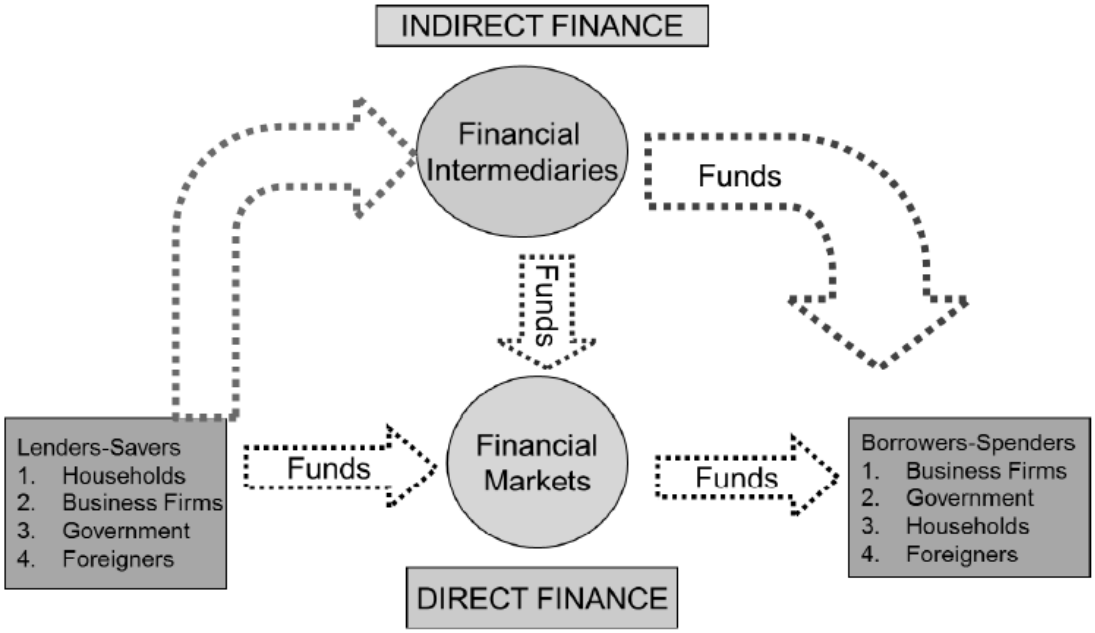

FUNCTIONS OF FINANCIAL SYSTEM

The financial system of a country performs certain valuable functions for the economic growth of that country. The main functions of a financial system may be briefly discussed as below:

1. **Saving function:** An important function of a financial system is to mobilize savings and channelize them into productive activities. It is through financial system the savings are transformed into investments.
2. **Liquidity function**: The most important function of a financial system is to provide money and monetary assets for the production of goods and services. Monetary assets are those assets which can be converted into cash or money easily without loss of value. All activities in a financial system are related to liquidity-either provision of liquidity or trading in liquidity.
3. **Payment function:** The financial system offers a very convenient mode of payment for goods and services. The cheque system and credit card system are the easiest methods of payment in the economy. The cost and time of transactions are considerably reduced.
4. **Risk function**: The financial markets provide protection against life, health and income risks. These guarantees are accomplished through the sale of life, health insurance and property insurance policies.
5. **Information function:** A financial system makes available price-related information. This is a valuable help to those who need to take economic and financial decisions. Financial markets disseminate information for enabling participants to develop an informed opinion about investment, disinvestment, reinvestment or holding a particular asset.
6. **Transfer function:** A financial system provides a mechanism for the transfer of the resources across geographic boundaries.
7. **Reformatory functions:** A financial system undertaking the functions of developing, introducing innovative financial assets/instruments services and practices and restructuring the existing assets, services etc, to cater the emerging needs of borrowers and investors (financial engineering and re-engineering).
8. **Other functions:** It assists in the selection of projects to be financed and also reviews performance of such projects periodically. It also promotes the process of capital formation by bringing together the supply of savings and the demand for investible funds.

ROLE AND IMPORTANCE OF FINANCIAL SYSTEM IN ECONOMIC DEVELOPMENT

Based on the functions of the financial system, it is seen that it is very important for the development of the economy. Following points indicate the role and importance of financial system:

1. It links the savers and investors. It helps in mobilizing and allocating the savings efficiently and effectively. It plays a crucial role in economic development through saving investment process. This savings – investment process is called capital formation.

2. It helps to monitor corporate performance.

3. It provides a mechanism for managing uncertainty and controlling risk.

4. It provides a mechanism for the transfer of resources across geographical boundaries.

5. It offers portfolio adjustment facilities (provided by financial markets and financial intermediaries).

6. It helps in lowering the transaction costs and increase returns. This will motivate people to save more.

7. It promotes the process of capital formation.

8. It helps in promoting the process of financial deepening and broadening. Financial deepening means increasing financial assets as a percentage of GDP and financial broadening means building an increasing number and variety of participants and instruments.

Classification of Financial Markets:

There are different ways of classifying financial markets. There are mainly five ways of classifying financial markets.

1. Classification on the basis of the type of financial claim: On this basis, financial markets may be classified into debt market and equity market.

***Debt market*:** This is the financial market for fixed claims like debt instruments.

***Equity market*:** This is the financial market for residual claims, i.e., equity instruments.

2. Classification on the basis of maturity of claims: On this basis, financial markets may be classified into money market and capital market.

***Money market*:** A market where short term funds are borrowed and lend is called money market. It deals in short term monetary assets with a maturity period of one year or less.

Liquid funds as well as highly liquid securities are traded in the money market. Examples of money market are Treasury bill market, call money market, commercial bill market etc. The main participants' in this market are banks, financial institutions and government. In short, money market is a place where the demand for and supply of short term funds are met.

***Capital market*:** Capital market is the market for long term funds. This market deals in the long-term claims, securities and stocks with a maturity period of more than one year. It is the market from where productive capital is raised and made available for industrial purposes. The stock market, the government bond market and derivatives market are examples of capital market. In short, the capital market deals with long term debt and stock.

3. Classification on the basis of seasoning of claim: On this basis, financial markets are classified into primary market and secondary market.

***Primary market*:** Primary markets are those markets which deal in the new securities. Therefore, they are also known as *new issue markets*. These are markets where securities are issued for the first time. In other words, these are the markets for the securities issued directly by the companies. The primary markets mobilize savings and supply fresh or additional capital to business units. In short, primary market is a market for raising fresh capital in the form of shares and debentures.

***Secondary market*:** Secondary markets are those markets which deal in existing securities. Existing securities are those securities that have already been issued and are already outstanding. Secondary market consists of stock exchanges. Stock exchanges are self regulatory bodies under the overall regulatory purview of the Govt. /SEBI.

4. Classification on the basis of structure or arrangements: On this basis, financial markets can be classified into organized markets and unorganized markets.

***Organized markets*:** These are financial markets in which financial transactions take place within the well-established exchanges or in the systematic and orderly structure.

***Unorganized markets*:** These are financial markets in which financial transactions take place outside the well-established exchange or without systematic and orderly structure or arrangements.

5. Classification on the basis of timing of delivery: On this basis, financial markets may be classified into cash/spot market and forward / future market.

***Cash / Spot market*:** This is the market where the buying and selling of commodities happens or stocks are sold for cash and delivered immediately after the purchase or sale of commodities or securities.
***Forward/Future market*:** This is the market where participants buy and sell stocks/commodities, contracts and the delivery of commodities or securities occurs at a predetermined time in future.

6. Other types of financial market: Apart from the above, there are some other types of financial markets. They are foreign exchange market and derivatives market.

Foreign exchange market: Foreign exchange market is simply defined as a market in which one country's currency is traded for another country's currency. It is a market for the purchase and sale of foreign currencies.

Derivatives market: The derivatives are most modern financial instruments in hedging risk. The individuals and firms who wish to avoid or reduce risk can deal with the others who are willing to accept the risk for a price. A common place where such transactions take place is called the derivative market. It is a market in which derivatives are traded. In short, it is a market for derivatives. The important types of derivatives are forwards, futures, options, swaps, etc.

FINANCIAL INSTITUTIONS

Financial institutions are the participants in a financial market. They are business organizations dealing in financial resources. They collect resources by accepting deposits from individuals and institutions and lend them to trade, industry and others. They buy and sell financial instruments. They generate financial instruments as well. They deal in financial assets. They accept deposits, grant loans and invest in securities.

Financial institutions are the business organizations that act as mobilizes of savings and as purveyors of credit or finance. This means financial institutions mobilize the savings of savers and give credit or finance to the investors. They also provide various financial services to the community. They deal in financial assets such as deposits, loans, securities and so on.

On the basis of the nature of activities, financial institutions may be classified as:

(a) Regulatory and promotional institutions,
(b) Banking institutions, and
(c) Non-banking institutions.

(a). Regulatory and Promotional Institutions:

Financial institutions, financial markets, financial instruments and financial services are all regulated by regulators like Ministry of Finance, the Company Law Board, RBI, SEBI, IRDA, Dept. of Economic Affairs, Department of Company Affairs etc. The two major Regulatory and Promotional Institutions in India are Reserve Bank of India (RBI) and Securities Exchange Board of India (SEBI). Both RBI and SEBI administer, legislate, supervise, monitor, control and discipline the entire financial system. RBI is the apex of all financial institutions in India. All financial institutions are under the control of RBI. The financial markets are under the control of SEBI. Both RBI and SEBI have laid down several policies, procedures and guidelines. These policies, procedures and guidelines are changed from time to time so as to set the financial system in the right direction.

(b). Banking Institutions:

Banking institutions mobilize the savings of the people. They provide a mechanism for the smooth exchange of goods and services. They extend credit while lending money. They not only supply credit but also create credit. There are three basic categories of banking institutions.

(c) Non-banking Institutions:

The non-banking financial institutions also mobilize financial resources directly or indirectly from the people. They lend the financial resources mobilized. They lend funds but do not create credit. Companies like LIC, GIC, UTI, Development Financial Institutions, Organization of Pension and Provident Funds etc. fall in this category. Non-banking financial institutions can be categorized as investment companies, housing companies, leasing companies, hire purchase companies, specialized financial institutions (EXIM Bank etc.) investment institutions, state level institutions etc. Financial institutions are financial intermediaries. They intermediate between savers and investors. They lend money. They also mobilize savings.

The Banking System

The structure of the banking system is determined by two basic factors – economic and legal. The Development of the economy and the spread of banking habit calls for increasing banking services. The demand for these banking services affects the banks' structure and organization. National objectives and aspirations result in government regulations, which have a profound influence on‟ the banking structure. These regulations are basically of two types. First, regulations which result in the formation of new banks to meet the specific needs of a group of economic activities. Secondly, legislation that affects the structure by means of nationalization, mergers or liquidation.

Reserve Bank of India

The Reserve Bank of India as the central bank of the country, is at the head of this group. Commercial banks themselves may be divided into two groups, the scheduled and the nonscheduled banks. The commercial banking system may be distinguished into:

A. Public Sector Banks

i) State Bank of India
ii) Associate Bank
iii) 14 Nationalized Banks (1969) Nationalized Banks
iv) 6 Nationalized Banks (1980)
v) Regional Rural Banks Mainly sponsored by Public Sector Banks

B. Private Sector Banks

i) Other Private Banks;
ii) New sophisticated Private Banks;
iii) Cooperative Banks included in the second schedule;
iv) Foreign banks in India, representative offices, and
v) One non-scheduled banks

Cooperative Sector

The cooperative banking sector has been developed in the country to replace the village moneylender, the predominant source of rural finance, as the terms on which he made finance available have generally been usurious and detrimental to the development of Indian agriculture. Although the sector receives concessional finance from the Reserve Bank, it is governed by the state legislation. From the point of view of the money market, it may be said to lie between the organized and the unorganized markets.

Primary cooperative Credit Societies

The primary cooperative credit society is an association of borrowers and non-borrowers residing in a particular locality. The funds of the society are derived from the share capital and deposits of members and loans from Central Co-operative banks. The borrowing power of the members as well as of the society is fixed. The loans are given to members for the purchase of cattle, fodder, fertilizers, pesticides, implements etc.

Central Co-operative Banks

These are the federations of primary credit societies in a district. These banks finance member societies within the limits of the borrowing capacity of societies. They also conduct all the business of a joint-stock bank.

State Co-operative Banks

The State Cooperative Bank is a federation of Central cooperative banks and acts as a watchdog of the cooperative banking structure in the State. Its funds are obtained from share capital,

deposits, loans and overdrafts from the Reserve Bank of India. The State Cooperative Banks lend money to central cooperative banks and primary societies and not directly to farmers.

Land Development Banks

The Land Development Banks, which are organized in three tiers, namely, State, Central and Primary level, meet the long-term credit requirements of farmers for developmental purposes, viz, purchase of equipment like pump sets, tractors and other machineries, reclamation of land, fencing, digging up new wells and repairs of old wells etc. Land Development Banks are cooperative institutions and they grant loans on the security of mortgage of immovable property of the farmers.

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