



RAMCO INSTITUTE OF TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Anna University
An ISO 9001: 2015 Certified Institution



Department of Mechanical Engineering

Three days Online Webinar on “Strength of Materials for Mechanical Engineers, an easy approach”

Date: 26.05.2020 – 28.05.2020

Co-ordinators: Dr.P.Suresh Kumar, Mr.T.Selva Sundar & Mr.K.Amudhan

Organized by: RIT-MECHANIZO & RIT-ISTE Students chapter

DAY 1 Session 1: Dr.P.Suresh Kumar, ASP/Mechanical, RIT.

Topic: Tension, Compression & shear stresses, Deformation of Simple & Compound bars (10 AM to 11:30 AM)

The Welcome address was given by Mr.T.Selva Sundar, AP/Mechanical. In the first session the resource person presented about basic in strength of materials and afterwards detailly explain about stresses and deformation in simple and compound bars. Then problems related to unit I were solved and the resource person explain about the importance of unit conversion while solving the problems. Participants asked questions to the resource person and got clarified. Mr.T.Selva Sundar, AP/Mechanical moderated the session & gave vote of thanks to the experts.

DAY 1 Session 2: Mr.J.Jabinth, AP/Mechanical, RIT.

Topic: Deflection in Beams (05.00 PM to 06:30 PM)

The Welcome address was given by Mr.T.Selva Sundar, AP/Mechanical. In the second session, resource person explained about deflection in beams. He explained the four methods used to calculate the deflection and slope of beam and then he clearly explained problems for all four methods. Participants really enjoyed the session. Participants asked questions to the resource person and got clarified. Mr.T.Selva Sundar, AP/Mechanical moderated the session & gave vote of thanks to the experts.

DAY 2 Session 1: Mr.C.Gururaj, AP (Sr.Gr)/Mechanical, RIT.

Topic: Torsion in Shaft (10 AM to 11:00 AM)

The Welcome address was given by Mr.T.Selva Sundar, AP/Mechanical. In the second session, resource person explained about torsion in shaft. He has shown many animation videos how torsion act in shaft with this videos participants were understand the concepts.

Resource person explained many difficult problems related to shaft. Participants asked questions to the resource person and got clarified. Mr.T.Selva Sundar, AP/Mechanical moderated the session & gave vote of thanks to the experts.

DAY 2 Session 2: Mr.S.Valai Ganesh, AP/Mechanical, RIT.

Topic: Deflection in springs (11 AM to 11:45 AM)

The Welcome address was given by Mr.T.Selva Sundar, AP/Mechanical. In the second session, resource person explained about deflection in springs and various types of springs. He has shown many application oriented images how deflection act in springs with this images participants were understand the concepts. Resource person explained many difficult problems related to helical and leaf springs. Participants asked questions to the resource person and got clarified. Mr.T.Selva Sundar, AP/Mechanical moderated the session & gave vote of thanks to the experts.

DAY 3 Session 1: Mr.K.Amudhan, AP/Mechanical, RIT.

Topic: Shear force and Bending Moment diagram in Beams. (10 AM to 11:30 AM)

The Welcome address was given by Mr.T.Selva Sundar, AP/Mechanical. In the second session, resource person explained about Shear force and bending moment diagram in beams. He has explained problems related to beam and also he explained how to check shear force and bending moment diagram in Beamguru website with this website participants were check their problems shear force and bending moment diagram. Participants asked questions to the resource person and got clarified. Mr.T.Selva Sundar, AP/Mechanical moderated the session & Mr.C.Gururaj, AP(Sr.Gr)/Mechanical gave vote of thanks to the experts.

DAY 3 Session 2: Mr.T.Selva Sundar, AP/Mechanical, RIT.

Topic: Thin & thick Cylinders & Thin Spherical shells. (05.00 PM to 06:30 PM)

The Welcome address was given by Mr.C.Gururaj, AP(Sr.Gr)/Mechanical. In the second session, resource person explained about Thin & thick Cylinders and Thin Spherical shells. He explained the difference between thin and thick cylinders and also solved explained problems related to thin & thick cylinders. He also explained problems in thin spherical shell and Compound cylinders. Participants really enjoyed the session. Participants asked questions to the resource person and got clarified. Mr.C.Gururaj, AP(Sr.Gr)/Mechanical moderated the session & gave vote of thanks to the experts.

Totally 20 Students were regularly participated in this webinar and also other colleges students were also participated in this webinar.

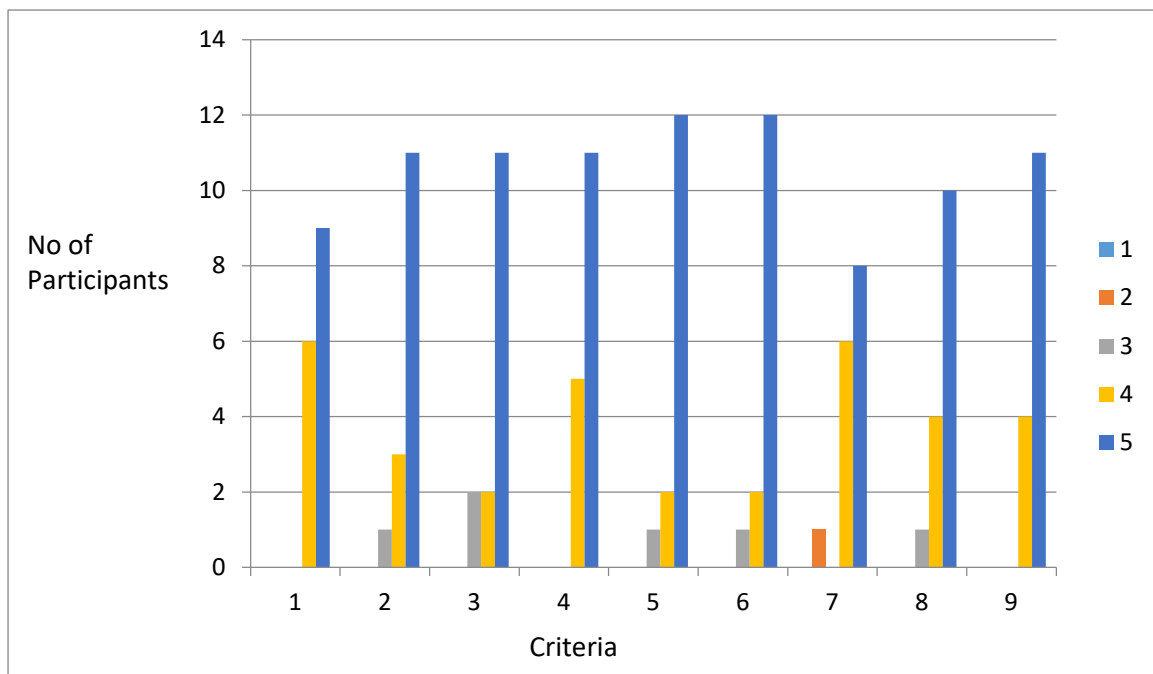
1. Government college of Engineering, Srirangam 2.Saranathan College of Engineering

The following observations were identified from the feedback received from participants,

- The webinar Provided me with valuable information regarding the theme -5
- The content delivered by resource person was useful - 5
- The technological support was strong enough to execute webinar smoothly - 5
- Rate the duration of webinar - 5
- Interaction / Q&A with the resource person - 5
- Webinar Video Quality - 5
- Continuity in streaming - 5
- Rate the timely communication in all aspects of the program - 5
- Overall feedback of the webinar -5

Specific topic and Session liked:

Macaulay's method, Shear force and bending moment diagram



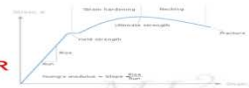


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Department of
Mechanical Engineering
in association with
RIT MECHANIZO & ISTE STUDENTS CHAPTER
presents

WEBINAR ON **STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERS, AN EASY APPROACH**



26.05.2020

Dr P SURESH KUMAR
(ASP)

**TENSION, COMPRESSION &
SHEAR STRESSES,
DEFORMATION OF SIMPLE
& COMPOUND BARS**
10am-11.30am



26.05.2020



MR J JABINTH (AP)
**DEFLECTION IN
BEAMS**
5pm-6.30pm

27.05.2020



MR C GURURAJ
(AP(Sr.Gr))
TORSION IN SHAFTS
10am-11.30am



MR S VALAI GANESH
(AP)
**DEFLECTION IN
SPRINGS**
10am-11.30am

28.05.2020



MR K AMUDHAN (AP)
**SHEAR FORCE &
BENDING MOMENT
DIAGRAM IN BEAMS**
10am-11.30am

28.05.2020



MR T SELVA SUNDAR
(AP)
**STRESSES IN
THIN/THICK CYLINDER
& THIN SPHERICAL
SHELLS**
5pm-6.30pm

No Registration
fee



Registration link:
<https://forms.gle/JPc881ZrA5Rc85YV9>

Scan the
code to
register

Online platform details will be
mailed to you
E-Certificate will be generated
on successful completion of quiz
at the end of the webinar
(Exclusively for IInd yr
Mechanical Engineering
Students)
Limited to 100 participants,
First come, first serve basis

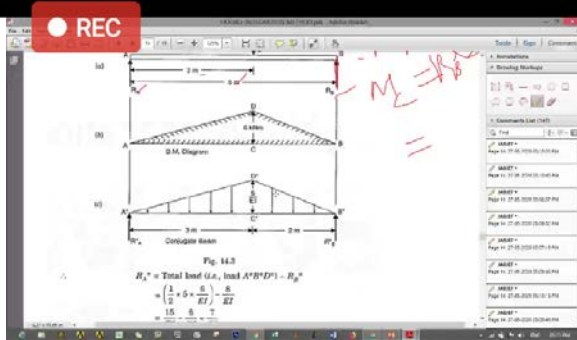
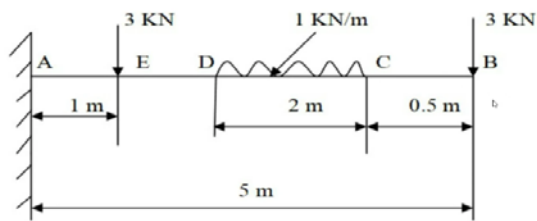
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5:11 PM

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SELVA SUNDAR (You)



RIT DYNAMICS



AMUDHAN K



AMUDHAN K

Gangaraj has joined

Others in the meeting (14)



SELVA SUNDAR (You)



JABINTH J



JABINTH J



MADHAVAKANNAN R

Others in the meeting (13)

REC

HELICAL SPRINGS

Maximum Shear stress in the spring

$$\tau = \frac{16W \times R}{\pi d^3}$$

Deflection of a spring

$$\delta = \frac{64WR^3n}{Cd^4}$$

Stiffness of a spring

$$S = \frac{Cd^4}{64 \cdot R^3 \cdot n}$$

Note: Solid length = Number of coils x Dia. of wire = n x d

THEORY OF TORSION

$$\frac{T}{J} = \frac{\tau}{r} = \frac{G\theta}{L}$$

G = Modulus of rigidity (N/m²)
θ = angle of twist (radians)
L = length of bar (m)
T = torque (N-m)
J = Polar moment of inertia (m⁴)
r = radial distance of point from center of section (m)
τ = shear stress (N/m²)

The following assumptions are made:

1. Material of the shaft is homogeneous throughout the length of the shaft.
2. Shaft is straight and of uniform circular cross section over its length.
3. Torsion is constant along the length of the shaft.
4. Cross section of the shaft which are plane before torsion remain plane i torsion.
5. Radial lines remain radial during torsion.
6. Stresses induced during torsion are within the elastic limit.

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SELVA SUNDAR (You)

V

Valai Ganesh

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Harish Harish

Others in the meeting (12)

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SELVA SUNDAR (You)

RIT DYNAMICS

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edwin sagayaraj

RIT DYNAMICS

Ayyoob Ahamed has joined

Others in the meeting (13)

10:31 AM

Strength of Materials - by Raju.pdf - Adobe Acrobat Reader DC

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1.2. STRESS

When a body is acted upon by some load or external force, it undergoes deformation (*i.e.*, change in shape or dimensions) which increases gradually. During deformation, the material of the body resists the tendency of the load to deform the body, and when the load influence is taken over by the internal resistance of the material of the body, it becomes stable. This *internal resistance which the body offers to meet with the load is called stress*.

Stress can be considered either as total stress or unit stress. Total stress represents the total resistance to an external effect and is expressed in N, kN or MN. Unit stress represents the resistance developed by a unit area of cross-section, and is expressed in N/mm^2 . For the re-

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RIT DYNAMICS

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SELVA SUNDAR (You)

Suresh Kumar P

Suresh Kumar P

Mani kandan

Others in the meeting (14)

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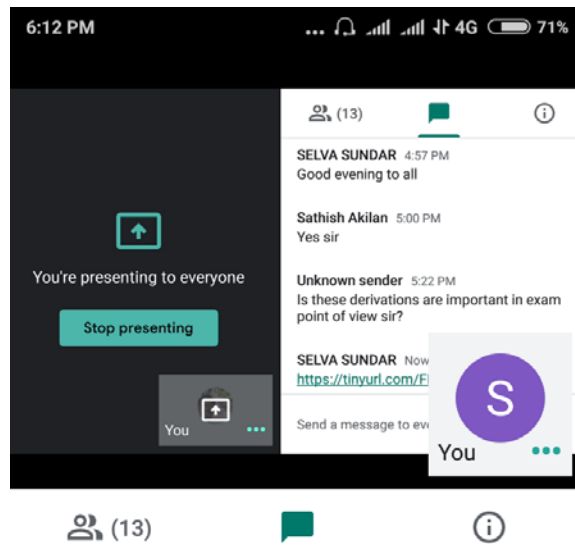
Others in the meeting (10)

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ARU AADHI

ARUN RAJAKUMAR

Ayyoob Ahamed



You 4:57 PM
Good evening to all

Sathish Akilan 5:00 PM
Yes sir

nqvi 18 5:22 PM
Is these derivations are important in exam point of view sir?

You Now
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