Kandula Srinivasa Reddy Memorial College of Engineering
(Autonomous)

Kadapa-516003. AP

(Approved by AICTE, Affiliated to JNTUA, Ananthapuramu, Accredited by NAAC)

(An ISO 9001-2008 Certified Institution)

Department of Civil Engineering

Certification Course

on

Beam design formulae with shear force and bending moment diagrams

Course Instructor: Dr. V. Ramesh Babu,
Assistant Professor, Dept. Civil Engg., KSRMCE

Course Coordinators: Sri B. Sreenivasula Reddy and Miss. B. Sravani
Assistant Professor, Dept. Civil Engg., KSRMCE

Date: 09/11/20 to 27/11/20

K.S.R.M. COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India– 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Lr./KSRMCE/CE/2020-21/

Date: 02-11-2020

From

Sri B. Sreenivasula Reddy and Miss. B. Sravani
Asst. Professor,
Dept. of Civil Engineering,
KSRMCE,
Kadapa.

To

The Principal,
KSRMCE,
Kadapa.

Sub: Permission to Conduct Certificate Course – Reg.

Dear Sir,

The Department of Civil Engineering is planning to offer a certification course on "Beam design formulae with shear force and bending moment diagrams" to B. Tech. students of Civil Engineering. The course will start on 9th Nov. 2020 to 27th Nov. 2020 and the course will run for a total number of 30 hours. In this regard, I am requesting you to accept the proposal to conduct certificate course.

Thanking you

Yours faithfully

B. Sravani

(Sri B. Sreenivasula Reddy and Miss. B. Sravani)

Permitted
V.S.S. Murty

K.S.R.M. COLLEGE OF ENGINEERING

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Cr./KSRMCE/CE/2020-21/ Date: 02/11/2020

Circular

The Department of Civil Engineering is offering a certification course on "Beam design formulae with shear force and bending moment diagrams". The course will start on 09-11-2020 and the course will run for a total number of 30 hours. In this regard, interested students of Civil Engineering are required to register for the Certification Course. The registration link is given below.

https://docs.google.com/forms/f/g/2NSlfalksKShnvl57aTnclaspjWflksNkjaOsJDaudoasKKwlknvlT9w/viewform

The Course Coordinators
Sri B. Sreenivasula Reddy and Miss. B. Sravani,
Assistant Professor,
Dept. of Civil Engg.-KSRMCE.

V. S. S. Murty
Principal

PRINCIPAL
K.S.R.M. COLLEGE OF ENGINEERING
KADAPA - 516 003. (A.P.)

Cc to:

The Director, KSRMCE

The HoD-Civil, KSRMCE

IQAC-KSRMCE

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Department of Civil Engineering

Registration list of Certification course

on

Beam design formulae with shear force and bending moment diagrams

Sl. No.	Student Roll No.	Student Name	Mail ID
1	199Y1A0101	Avinash Kumar Boggiti	199Y1A0101@ksrmce.ac.in
2	199Y1A0102	Sampurna Rani Bollavaram	199Y1A0102@ksrmce.ac.in
3	199Y1A0103	Suryanarayana Byrisetty	199Y1A0103@ksrmce.ac.in
4	199Y1A0105	Shanmukha Sai Sreenivasa Reddy C	199Y1A0105@ksrmce.ac.in
5	199Y1A0106	Haritha Chinamadula	199Y1A0106@ksrmce.ac.in
6	199Y1A0107	Arun Kumar Dantham	199Y1A0107@ksrmce.ac.in
7	199Y1A0108	Anusha Dhamerla	199Y1A0108@ksrmce.ac.in
8	199Y1A0109	Chennakeshava Dirasantha	199Y1A0109@ksrmce.ac.in
9	199Y1A0110	Mahamad Javid Gajula	199Y1A0110@ksrmce.ac.in
10	199Y1A0112	Suneel Giddaluru	199Y1A0112@ksrmce.ac.in
11	199Y1A0114	Jagadeesh Gowri Gari	199Y1A0114@ksrmce.ac.in
12	199Y1A0115	Faheem Hachhulukatte	199Y1A0115@ksrmce.ac.in
13	199Y1A0116	Venkata Sai Janapati	199Y1A0116@ksrmce.ac.in
14	199Y1A0117	Venkata Surendra Jandlavaram	199Y1A0117@ksrmce.ac.in
15	199Y1A0118	Chaitanya Kanta	199Y1A0118@ksrmce.ac.in
16	199Y1A0119	Vekrishna Yadav Katuboina	199Y1A0119@ksrmce.ac.in
17	199Y1A0120	Kejiya Kola	199Y1A0120@ksrmce.ac.in
18	199Y1A0121	Konda Reddy Konda	199Y1A0121@ksrmce.ac.in
19	199Y1A0122	Nagarathna Kumbhagiri	199Y1A0122@ksrmce.ac.in

20	199Y1A0123	Veera Sai Kumar Reddy Lomati	199Y1A0123@ksrmce.ac.in
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22	199Y1A0126	Jagan Mohan Midde	199Y1A0126@ksrmce.ac.in
23	199Y1A0127	Yagna Priya Moram	199Y1A0127@ksrmce.ac.in
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35	199Y1A0145	Pavankumarreddy Salindra	199Y1A0145@ksrmce.ac.in
36	199Y1A0146	Mahammad Salivemula	199Y1A0146@ksrmce.ac.in
37	199Y1A0147	Sudharshan Sandella	199Y1A0147@ksrmce.ac.in
38	199Y1A0148	Surendra Sanduboina	199Y1A0148@ksrmce.ac.in
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59	199Y1A0174	Mounika Yerragudipadu	199Y1A0174@ksrmce.ac.in

B. Sravani

Coordinators

HoD-Civil Engg.

Head
Department of Civil Engineering
K.S.R.M. College of Engineering
(Autonomous)
KADAPA 516 003. (A.P.)

Syllabus of Certification Course

Course Name: Design of Compression members using Microsoft Excel.

Duration: 30 Hours

Module I:

Simply Supported beam point load, uniformly distributed load and uniformly varying load

Module II:

Cantilever beam subjected to point load and uniformly distributed load

Module III:

Over hanging beam (one side and both sides) subjected to point load and uniformly distributed load

Text Books:

1. R K Rajput, Strength of Materials, S. Chand Publications, 2016
2. S. Ramamrutham & R. narayanan, Strength of Materials, Dhanpat Rai Publishing Company, 2020

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Department of Civil Engineering

Certification course

on

Beam design formulae with shear force and bending moment diagrams

Date	Timing	Course Instructor	Topic to be covered
09/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	Simply Supported beam point load
10/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	Simply Supported beam point load
11/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	uniformly distributed load
12/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	uniformly distributed load
13/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	uniformly varying load
17/11/20	2 PM to 6 PM	Dr. V. Ramesh Babu	uniformly varying load
18/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	Cantilever beam subjected to point load
19/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	Cantilever beam subjected to point load
21/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	Cantilever beam subjected to uniformly distributed load
23/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	Cantilever beam subjected to uniformly distributed load
25/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	Over hanging beam (one side and both sides) subjected to point load
26/11/20	2 PM to 6 PM	Dr. V. Ramesh Babu	Over hanging beam (one side and both sides) subjected to uniformly distributed load
27/11/20	4 PM to 6 PM	Dr. V. Ramesh Babu	Over hanging beam (one side and both sides) subjected to uniformly distributed load

V. S. S. Murty

Principal

Instructor: V. Ramesh Baby

Coordinators: B. Swamy

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KADAPA - 516 003. (A.P.)

Report

of

Certification Course on Beam Design formulae with Shear Force and Bending Moment Diagrams

From 09/11/20 to 27/11/20

Target Group : **Students**

Details of Participants : **59 Students**

Co-coordinator(s) : **Sri B. Sreenivasula Reddy & Miss. B. Sravani**

Organizing Department : **Civil Engineering**

Venue : **Online (Google Meet)**

Link: https://meet.google.com/lookup/nerfoaw44q

Description:

The Department of Civil Engineering conducted a certification course on "Beam Design formulae with Shear force and Bending moment diagrams" from 9th November 2020 to 27th November 2020. The course duration was 30 hours and the session on every day is from 4PM-6PM. The course instructor is Dr. V. Ramesh Babu, Assistant Professor, Department Civil Engineering and Coordinators are Sri B. Sreenivasula Reddy & Miss. B. Sravani, Assistant Professor, Department of Civil Engineering.

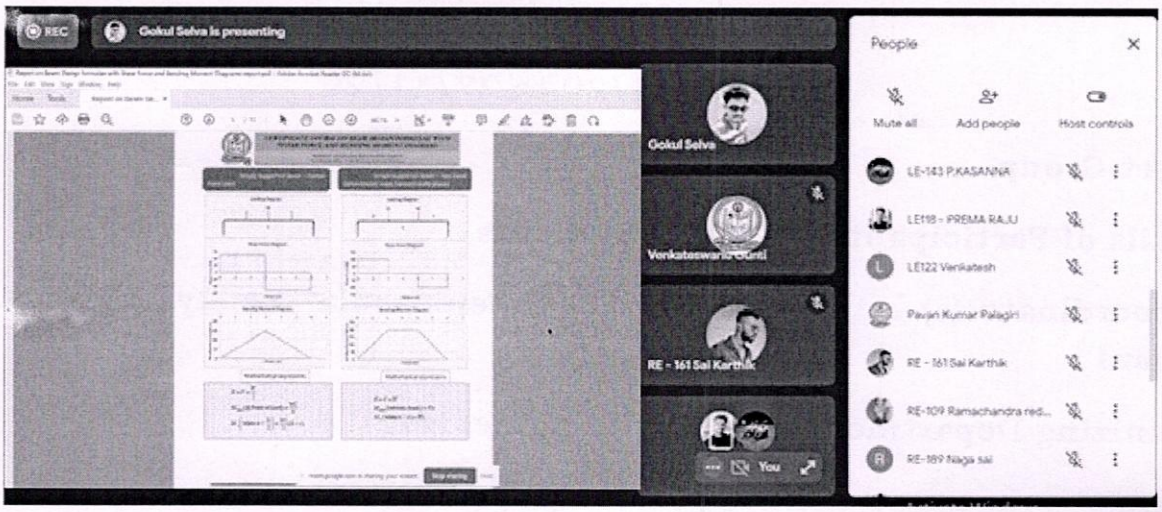
The main objective of this course is to introduce the fundamental concepts of shear force and bending moment and to determine the position and magnitude of maximum values of shear force and bending moment of beams under different loading conditions. The course is designed in such a way that the basic input parameter like loadings, span,

position of loads and end condition of the beams are sufficient to draw the SFD and BMD. Even the loading diagram also linked dynamically fir the set of input parameters.

The course was designed by considering the students have basic knowledge in Microsoft Excel. The course covered all types of determinate beams viz. Simply supported beams, cantilevers beams and over hanging beams.

Photo:

The picture taken during the course are given below:



V. Ramesh Baby
(Course Instructor)

(HoD, Civil Engg.)

Head
Department of Civil Engineering
K.S.R.M. College of Engineering
(Autonomous)
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V. S. S. Murty
Principal

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Kadapa, Andhra Pradesh, India- 516 003

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DEPARTMENT OF CIVIL ENGINEERING

Certificate Course
on
"Beam design formulae with shear force and bending moment diagrams"

Resource Person

Dr. V. Ramesh Babu

Department of Civil Engineering

Date

09-11-2020

to

27-11-2020

Coordinator: Sri B. Sreenivasula Reddy and Miss. B. Sravani

Asst. Professor

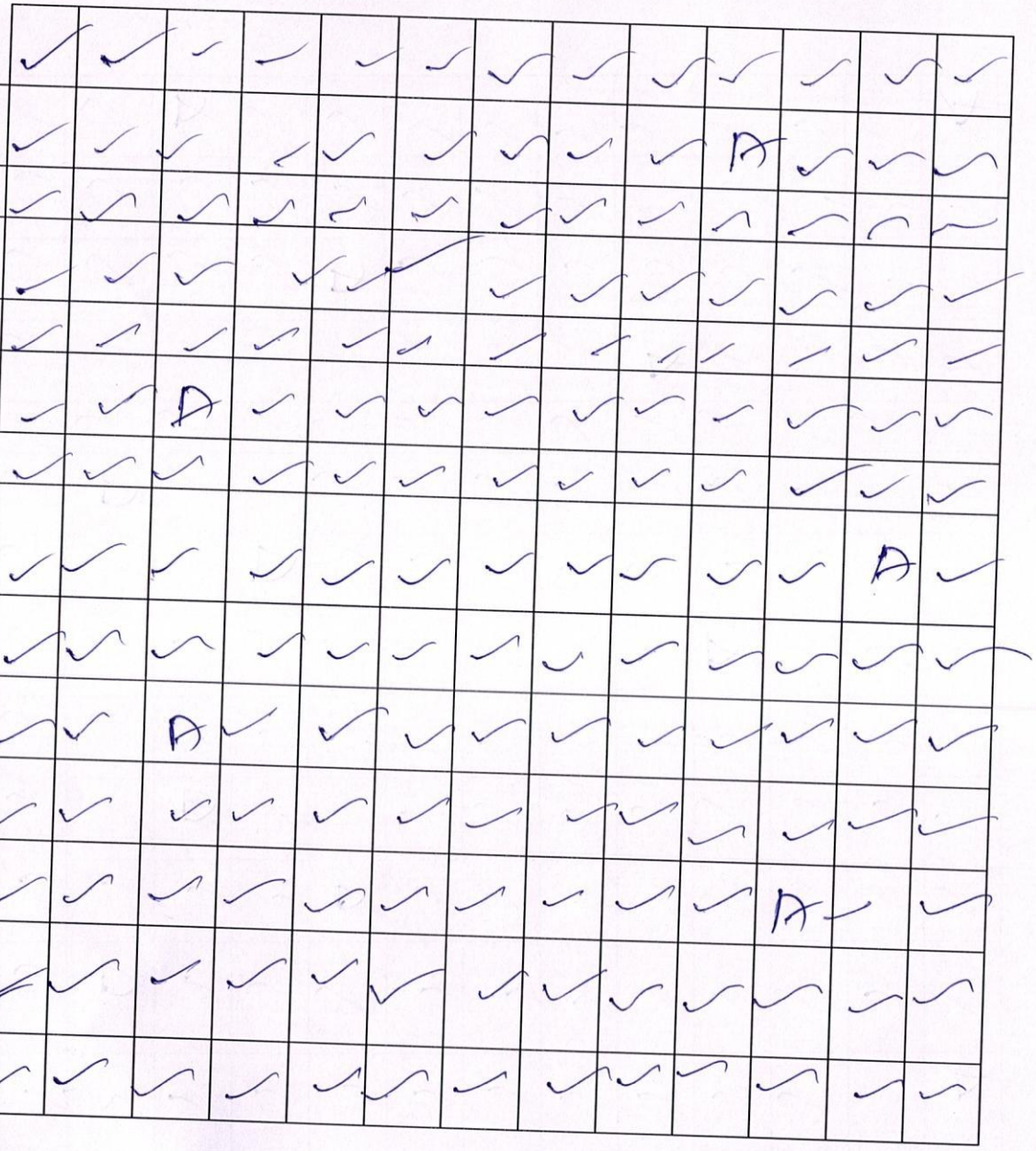
Department of Civil Engineering

Attendance sheet of Certification course on "Beam design formulae with shear force and bending moment diagrams"

Sl. No.	Student Roll No.	Student Name	9/ 11	10/ 11	11/ 11	12/ 11	13/ 11	17/ 11	18/ 11	19/ 11	21/ 11	23/ 11	25/ 11	26/ 11	27/ 11
1	199Y1A0101	Avinash Kumar Boggiti	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	199Y1A0102	Sampurna Rani Bollavaram	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓
3	199Y1A0103	Suryanarayana Byrisetty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A
4	199Y1A0105	Shanmukha Sai Sreenivasa Reddy C	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	A	✓	✓
5	199Y1A0106	Haritha Chinamadula	A	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓
6	199Y1A0107	Arun Kumar Dantham	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	A
7	199Y1A0108	Anusha Dhamerla	✓	✓	✓	A	✓	✓	✓	A	✓	✓	✓	✓	✓
8	199Y1A0109	Chennakeshava Dirasantha	✓	A	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓
9	199Y1A0110	Mahamad Javid Gajula	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	199Y1A0112	Suneel Giddaluru	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	199Y1A0114	Jagadeesh Gowri Gari	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓

12	199Y1A0115	Faheem Hachhulukatte	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	199Y1A0116	Venkata Sai Janapati	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓
14	199Y1A0117	Venkata Surendra Jandlavaram	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓
15	199Y1A0118	Chaitanya Kanta	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	199Y1A0119	Vekrishna Yadav Katuboina	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓
17	199Y1A0120	Kejiya Kola	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	199Y1A0121	Konda Reddy Konda	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	199Y1A0122	Nagarathna Kumbhagiri	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	199Y1A0123	Veera Sai Kumar Reddy Lomati	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓
21	199Y1A0124	Jagadeesh Manjula	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	A
22	199Y1A0126	Jagan Mohan Midde	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	199Y1A0127	Yagna Priya Moram	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
24	199Y1A0128	Naveen Motupalli	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

25	199Y1A0129	Saitejesh Reddy Mudupunamala													A
26	199Y1A0131	Harsha Vardhan Mundlapati		A											
27	199Y1A0132	Sesha Sai Naga					A								
28	199Y1A0133	Venkata Siva Pagidi			A										
29	199Y1A0135	Suresh Reddy Pemmireddy													
30	199Y1A0136	Arfathulla Khan Phatan										A			
31	199Y1A0137	Praveen Kumar Ponna				A									
32	199Y1A0139	Manjunath Poola		A											
33	199Y1A0141	Divya Ragi													
34	199Y1A0143	Hima Bindu Ravella									A				
35	199Y1A0145	Pavankumarreddy Salindra					A								
36	199Y1A0146	Mahammad Salivemula													
37	199Y1A0147	Sudharshan Sandella			A										A

38	199Y1A0148	Surendra Sanduboina	
39	199Y1A0149	Nagarjuna Savali	
40	199Y1A0150	Aswak Shaik	
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42	199Y1A0153	Imran Shaik	
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51	199Y1A0165	Sunil Kumar Thute	

52	199Y1A0166	Venkata Sai Yeshaswini Uppu													
53	199Y1A0167	Chandrasekhar Vadde													
54	199Y1A0168	Shaik Fayaz Hussain Vanipenta											A		
55	199Y1A0169	Sreenivasulu Varadhigandla				A									
56	199Y1A0170	Prathyusha Yambadi	A	A						A					
57	199Y1A0172	Bramhini Yeddula													A
58	199Y1A0173	Palakondaiah Yeddulakondu			A										
59	199Y1A0174	Mounika Yerragudipadu													A

B. Swami
Coordinators

HoD-Civil Engg.

Head
Department of Civil Engineering
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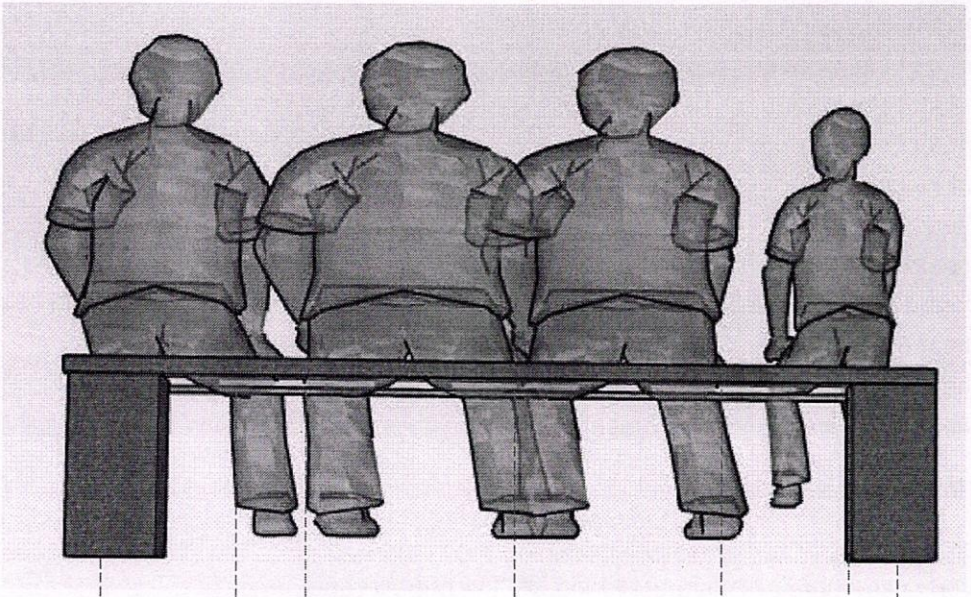
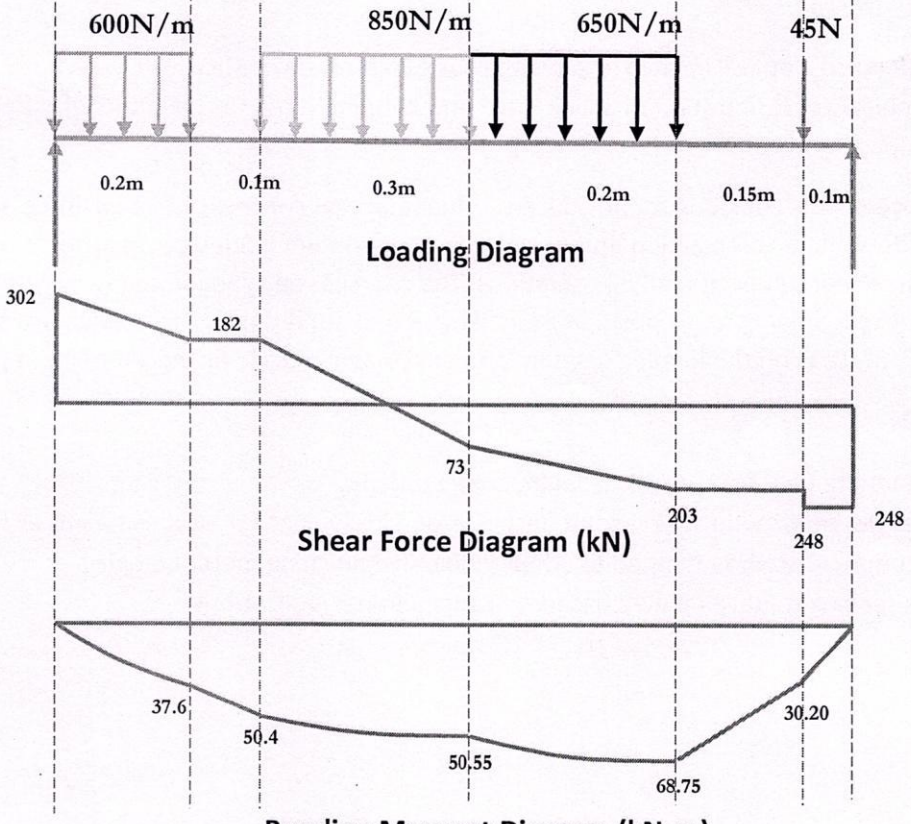



600N/m
850N/m
650N/m
45N
0.2m
0.1m
0.3m
0.2m
0.15m
0.1m
Loading Diagram
302
182
73
203
248
248
Shear Force Diagram (kN)
37.6
50.4
50.55
68.75
30.20
Bending Moment Diagram (kN-m)

What you will learn:

- ⇒ Basic terminology used in shear force and bending moment
- ⇒ Concept of Shear force and Bending moment
- ⇒ Different kinds of supports
- ⇒ Different kinds of loads acting on beams
- ⇒ Different kinds of beams
- ⇒ Draw Shear Force and Bending Moment Diagram of simply supported beam
- ⇒ Draw Shear Force and Bending Moment Diagram of Cantilever beam
- ⇒ Draw Shear Force and Bending Moment Diagram of Propped Cantilever beam
- ⇒ Draw Shear Force and Bending Moment Diagram of Overhanging beam
- ⇒ Draw Shear Force and Bending Moment Diagram of Fixed beam
- ⇒ Draw Shear Force and Bending Moment Diagram of Continuous beam

Prerequisite of the Course:

- ⇒ No much kind of prior knowledge is required
- ⇒ Your interest and timely attending session will the utmost requirement

Description about the course:

By the end of this course, you will be able to know the basic commands of Microsoft Excel and its operation to executive graphical representation of shear force and bending moment diagrams of different beams under subjected loading conditions.

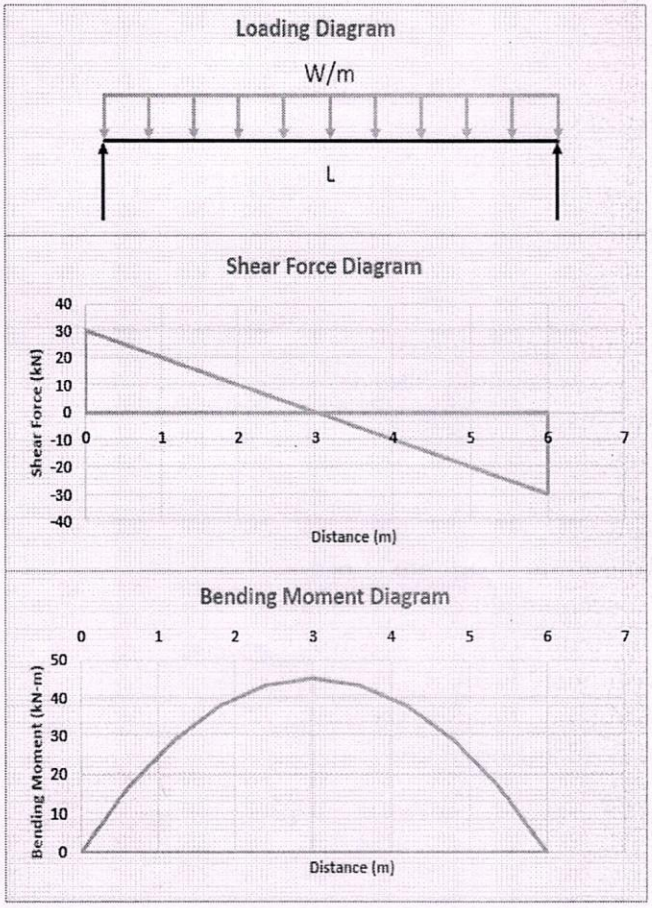
The main objective of this course is to introduce the fundamental concepts of shear force and bending moment and to determine the position and magnitude of maximum values of shear force and bending moment of beams under different loading conditions. The course is designed in such a way that the basic input parameter like loadings, span, position of loads and end condition of the beams are sufficient to draw the SFD and BMD. Even the loading diagram also linked dynamically fir the set of input parameters.

Target audiences:

- ⇒ Under graduate Civil & Mechanical Engineering Students
- ⇒ Structural Designers who seek instant design SF and BM values for various beams at field
- ⇒ Faculty community who intended to adopt innovative teaching methodologies
- ⇒ Students seeking to develop web based civil engineering applications

Course Content:

Problem-1 Simply Supported Beam – Uniformly Distributed Load



Mathematical expressions

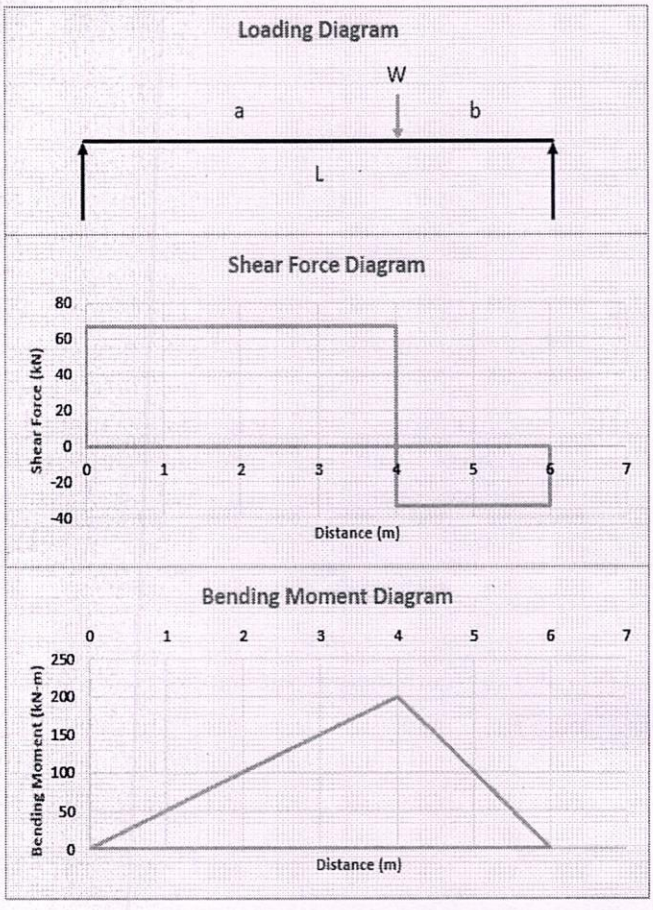
$$R = V = \frac{wL}{2}$$

$$V_x = w\left(\frac{L}{2} - x\right)$$

$$M_{max}(@Center) = \frac{wL^2}{8}$$

$$M_x = \frac{wx}{2}(L - x)$$

Problem-2 Simply Supported Beam – Concentrated load at Any Point



Mathematical expressions

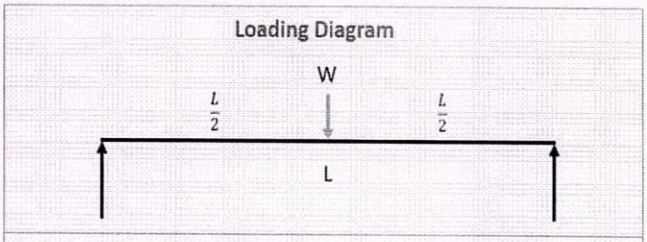
$$R_1 = V_1(\text{max when a} < \text{b}) = \frac{Pb}{L}$$

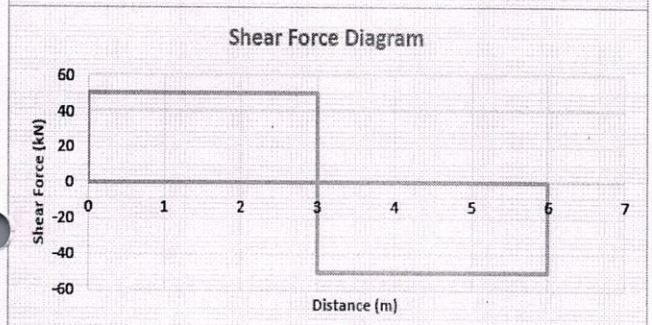
$$R_2 = V_2(\text{max when a} > \text{b}) = \frac{Pa}{L}$$

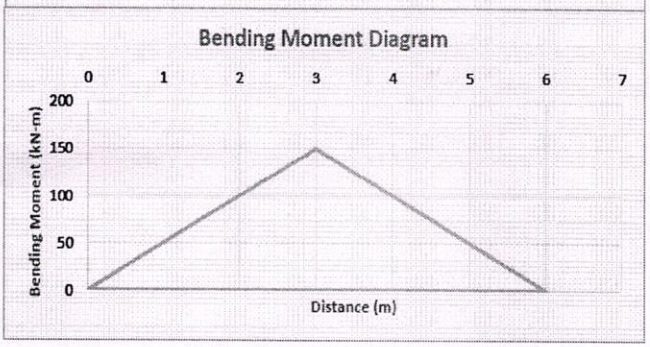
$$M_{max}(\text{at point of load}) = \frac{Pab}{L}$$

$$M_x(\text{when x<b}) = \frac{Pbx}{L}$$

Problem-3 Simply Supported Beam – Center Point Load







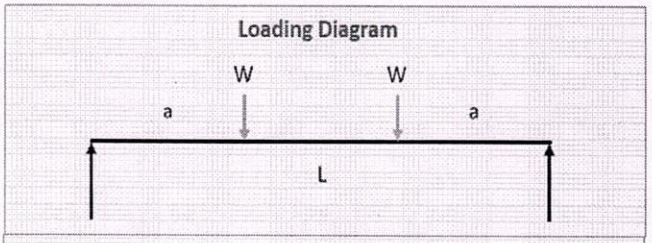
Mathematical expressions

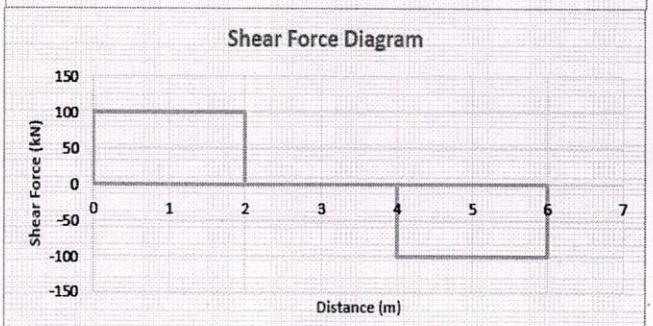
$$R = V = \frac{W}{2}$$

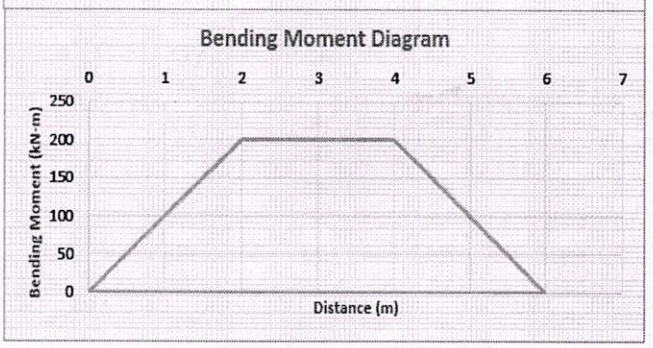
$$M_{\max}(@\text{ Point of load}) = \frac{wL}{4}$$

$$M_x\left(\text{ when } x < \frac{L}{2}\right) = \frac{wx}{2}(L - x)$$

Problem-4 Simply Supported Beam – Two Equal Concentrated Loads Symmetrically placed







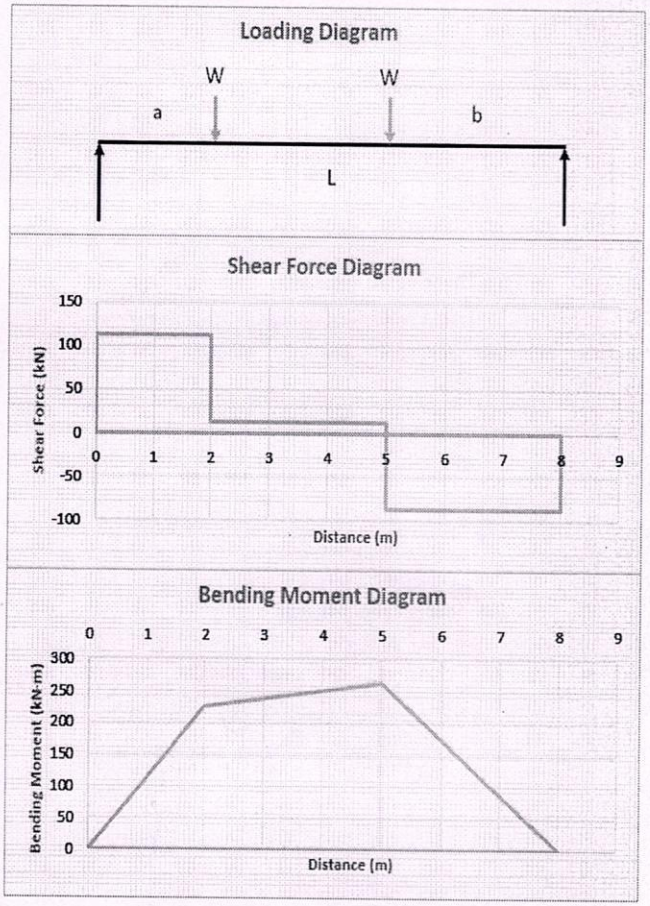
Mathematical expressions

$$R = V = W$$

$$M_{\max}(\text{between loads}) = Wa$$

$$M_x(\text{when } x < a) = Wx$$

Problem-5 Simply Supported Beam – Two Equal Concentrated Loads Unsymmetrically placed



Mathematical expressions

$$R_1 = V_1(\text{max when a} < \text{b}) = \frac{W}{L}(L - a + b)$$

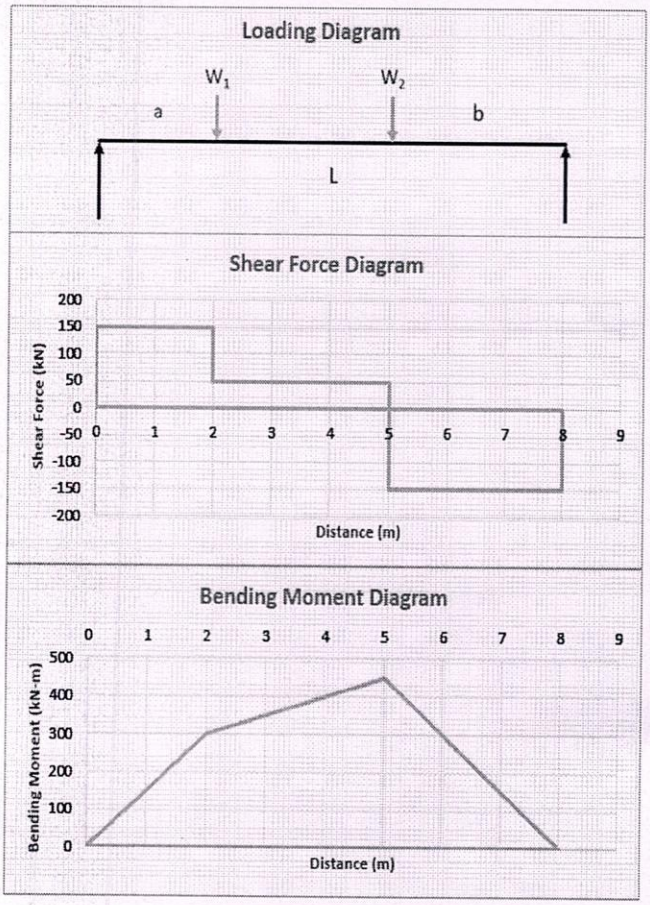
$$R_2 = V_2(\text{max when a} > \text{b}) = \frac{W}{L}(L - b + a)$$

$$V_x\left[\text{When x} > \text{a \& } < \text{(L-b)}\right] = \frac{W}{L}(b - a)$$

$$M_x\left[\text{when x} < \text{a}\right] = R_1 x$$

$$M_x\left[\text{when x} > \text{a \& } < \text{(L-b)}\right] = R_1 x - W(x - a)$$

Problem-6 Simply Supported Beam – Two Unequal Concentrated Loads Symmetrically placed



Mathematical expressions

$$R_1 = V_1 = \frac{W_1(L - a) + W_2 b}{L}$$

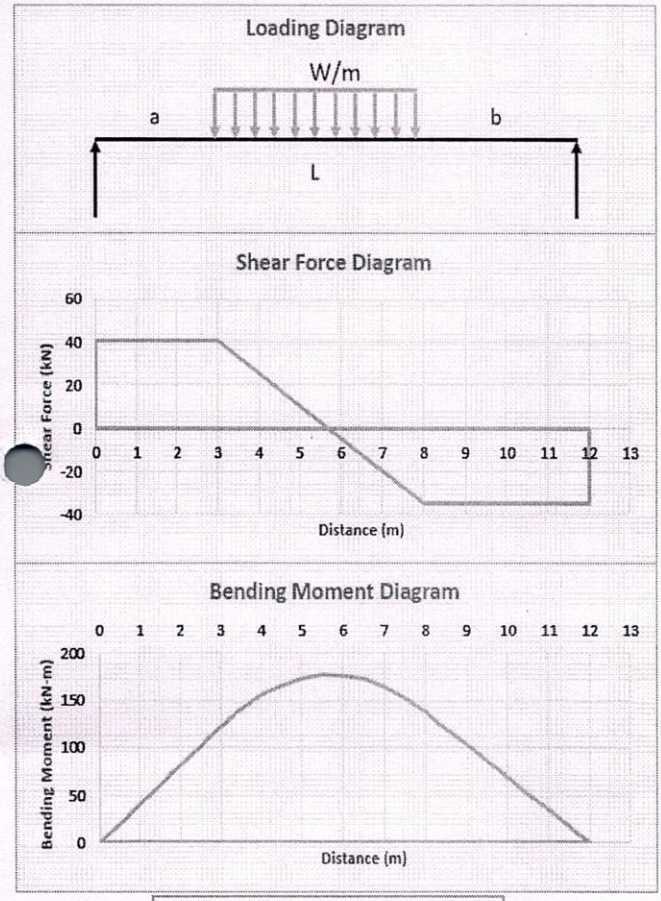
$$R_2 = V_2 = \frac{W_1 a + W_2(L - b)}{L}$$

$$V_x\left[\text{When x} > \text{a \& } < \text{(L-b)}\right] = R_1 - W_1$$

$$M_x\left[\text{when x} < \text{a}\right] = R_1 x$$

$$M_x\left[\text{when x} > \text{a \& } < \text{(L-b)}\right] = R_1 x - W_1(x - a)$$

Problem-7 Simply Supported Beam – Uniform Load Partially Distributed



Mathematical expressions

$$R_1 = V_1(\max \ when \ a < b) = \frac{w(L-a-b)}{2L}\left[2b+(L-a-b)\right]$$

$$R_2 = V_2(\max \ when \ a > b) = \frac{w(L-a-b)}{2L}\left[2a+(L-a-b)\right]$$

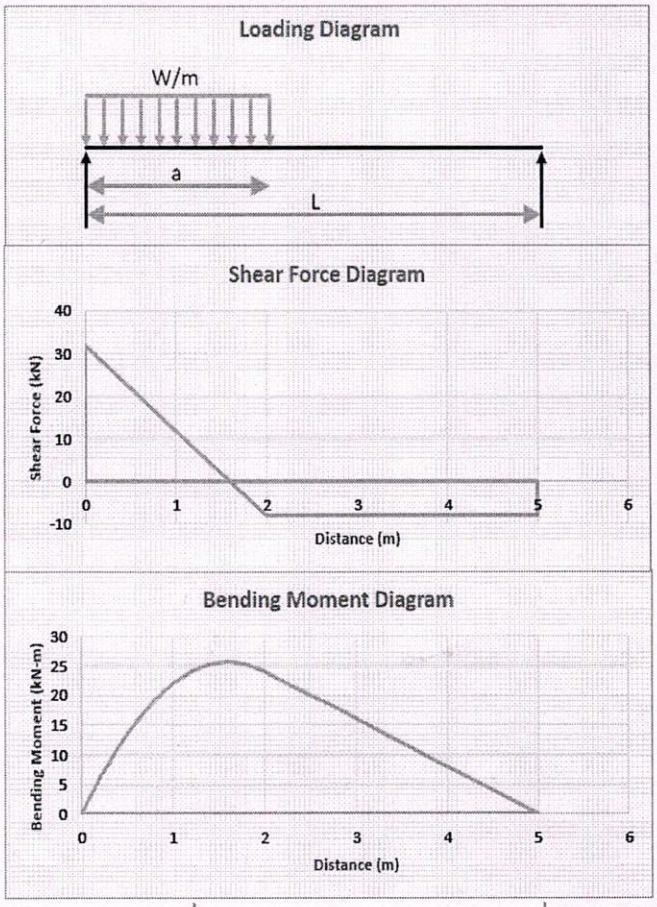
$$V_x\left[When\ x > a \ \& \ < (L-b)\right] = R_1 - w(x-a)$$

$$M_x\left[when\ x < a\right] = R_1 x$$

$$M_x\left[when\ x > (L-b)\right] = R_2(L-x)$$

$$M_x\left[when\ x > a \ \& \ < (L-b)\right] = R_1 x - \frac{w}{2}(x-a)^2$$

Problem-8 Simply Supported Beam – Uniform Load Partially Distributed at one end



Mathematical expressions

$$R_1 = V_1 = \frac{wa}{2L}\left[2L-a)\right]$$

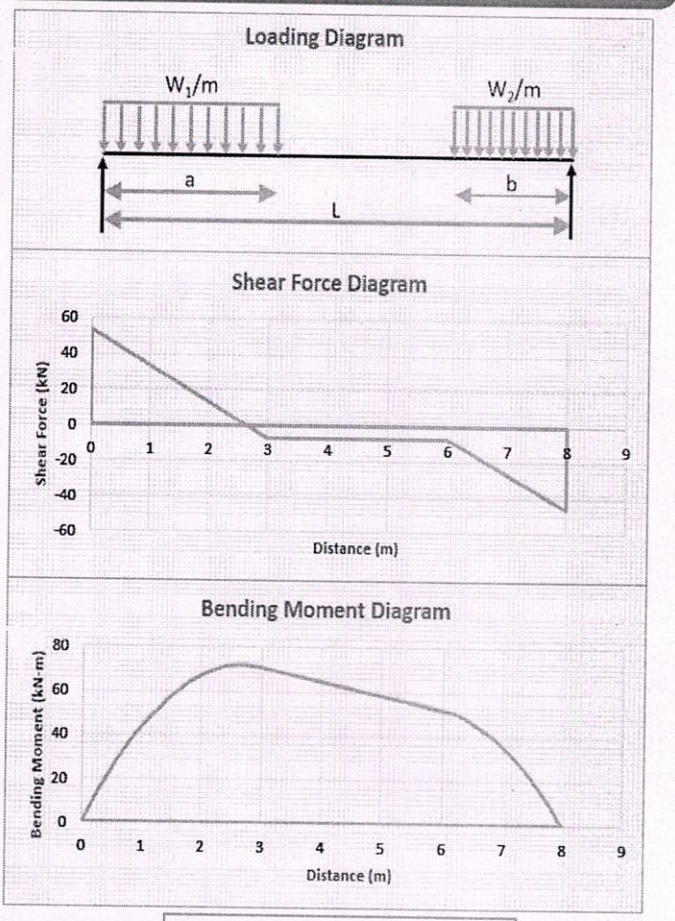
$$R_2 = V_2 = \frac{wa^2}{2L}$$

$$V_x\left[\text{When x < a }\right] = R_1 - wx$$

$$M_x\left[\text{when x < a}\right] = R_1 x - \frac{wx^2}{2}$$

$$M_x\left[\text{when x > a}\right] = R_2(L-x)$$

Problem-9 Simply Supported Beam – Uniform Load Partially Distributed at each End



Mathematical expressions

$$R_1 = V_1 = \frac{w_1 a(2L-a) + w_2 b^2}{2L}, R_2 = V_2 = \frac{w_2 b(2L-b) + w_1 a^2}{2L}$$

$$V_x\left[When\ x < a\right] = R_1 - w_1 x,\quad M_x\left[when\ x < a\right] = R_1 x - \frac{w_1 x^2}{2}$$

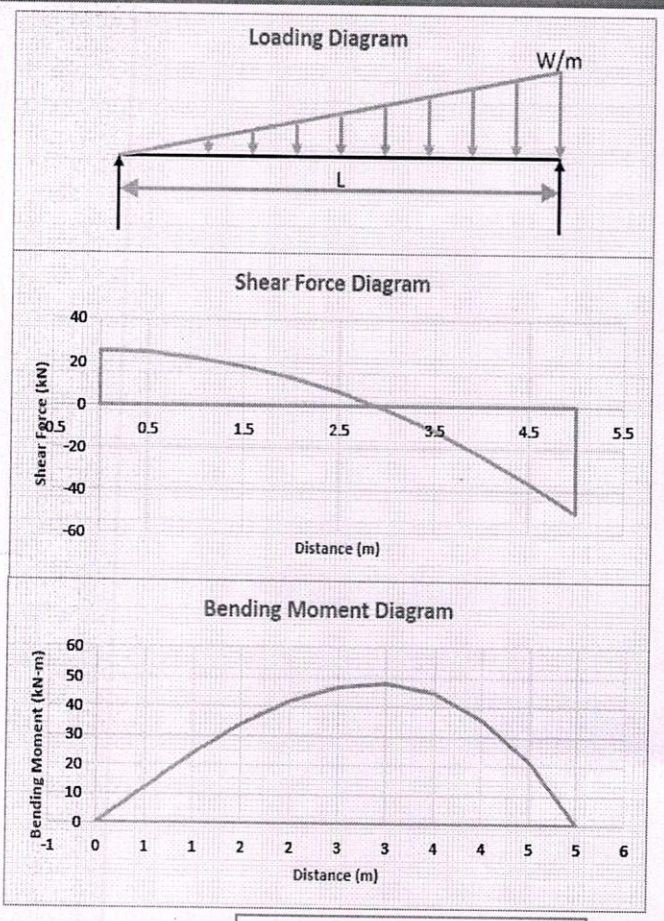
$$V_x\left[When\ x > a\ \&\ < (L-b)\right] = R_1 - w_1 a$$

$$V_x\left[When\ x > (L-b)\right] = R_2 - w_2(L-x)$$

$$M_x\left[when\ x > a\ \&\ < (L-b)\right] = R_1 x - \frac{w_1 a}{2}(2x-a)$$

$$M_x\left[when\ x > (L-b)\right] = R_2(L-x) - \frac{w_2}{2}(L-x)^2$$

Problem-10 Simply Supported Beam – Load Increasing Uniformly from one End



Mathematical expressions

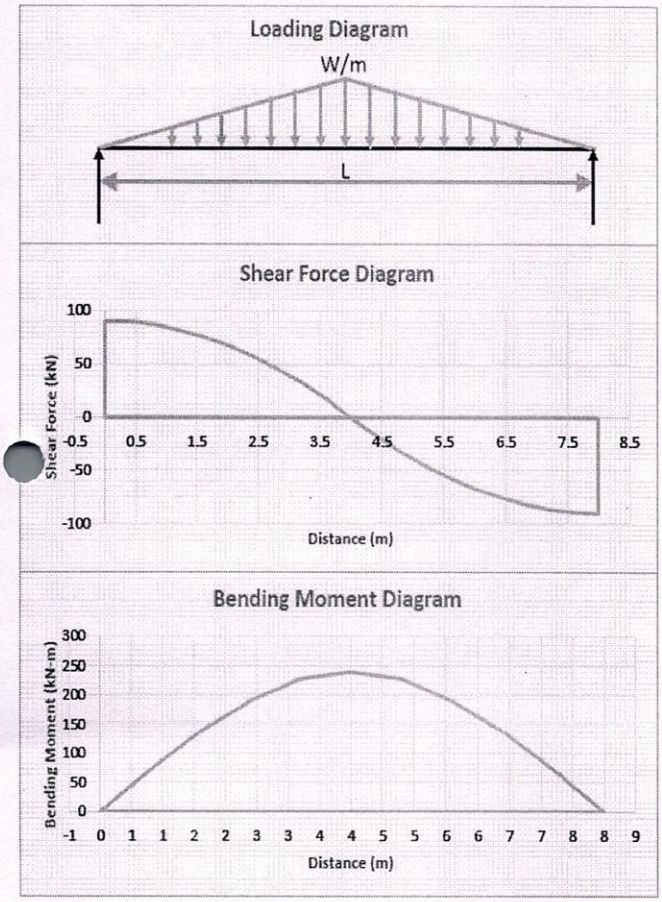
$$R_1 = V_1 = \frac{wL}{6}$$

$$R_2 = V_2 = \frac{wL}{3}$$

$$V_x = R_1 - \frac{wx^2}{2L}$$

$$M_x = R_1 x - \frac{wx^3}{6L}$$

Problem-11 Simply Supported Beam – Load Increasing Uniformly to Center



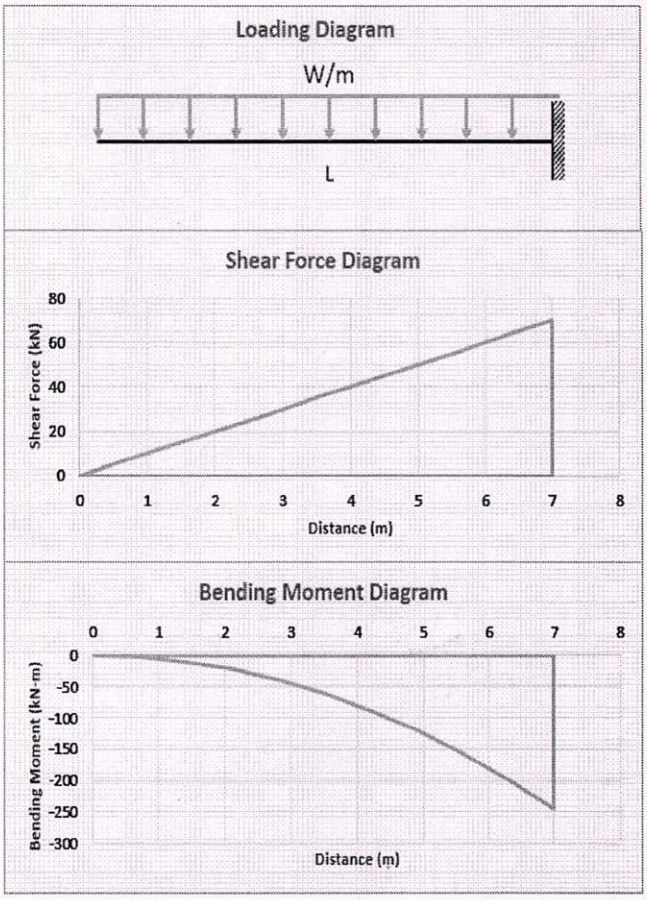
Mathematical expressions

$$R = V = \frac{wL}{4}$$

$$V_x \left[\text{When } x < \frac{L}{2} \right] = R - \frac{wx^2}{L}$$

$$M_x \left[\text{when } x < \frac{L}{2} \right] = Rx - \frac{wx^3}{3L}$$

Problem-12 Cantilever Beam – Uniformly Distributed Load



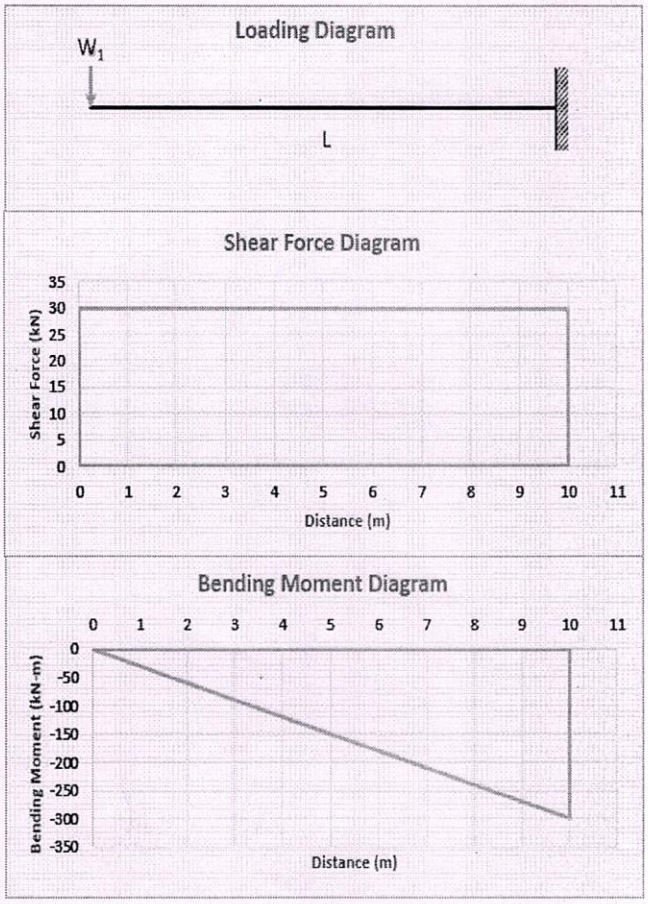
Mathematical expressions

$$R = V = wL$$

$$V_x = wx$$

$$M_x = \frac{wx^2}{2}$$

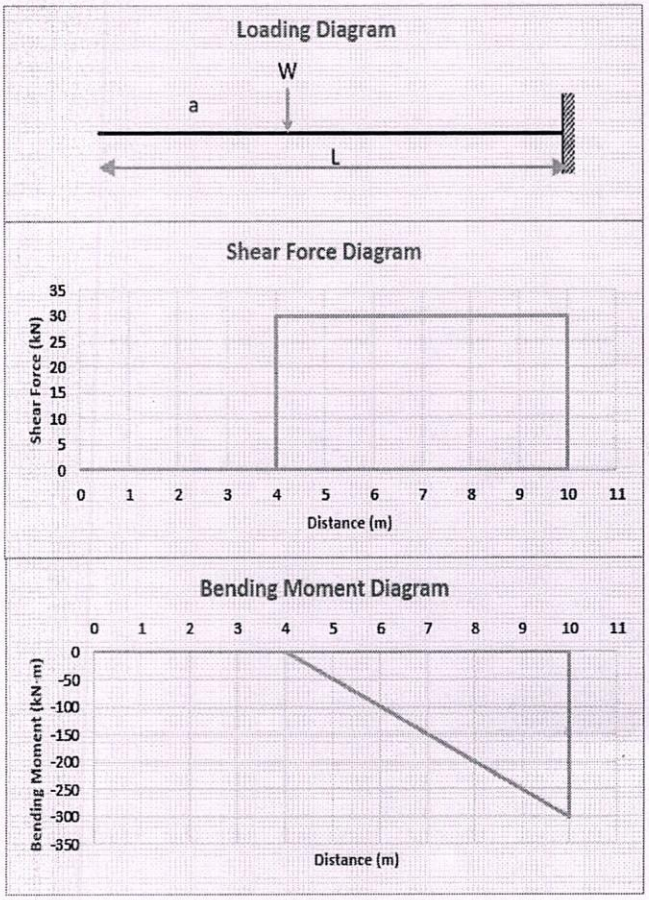
Problem-13 Cantilever Beam – Concentrated Load at the Free End



Mathematical expressions

$$R = V = W$$
$$V_x = W$$
$$M_x = Wx$$

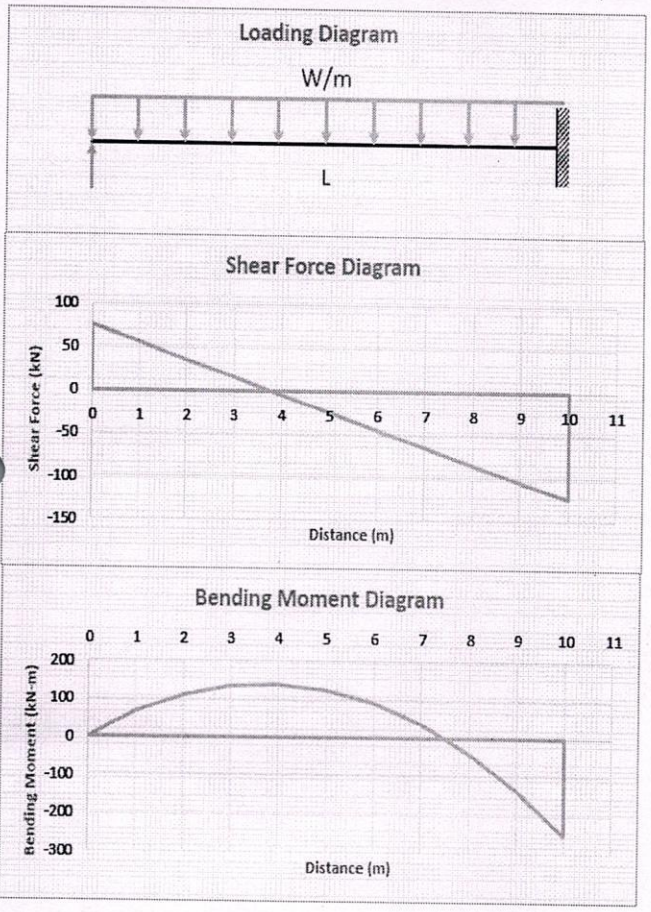
Problem-14 Cantilever Beam – Concentrated Load at Any Point



Mathematical expressions

$$R = V = W$$
$$M_x (\text{when x} > \text{a}) = W(x - a)$$

Problem-15 Propped Cantilever Beam – Uniformly Distributed Load



Mathematical expressions

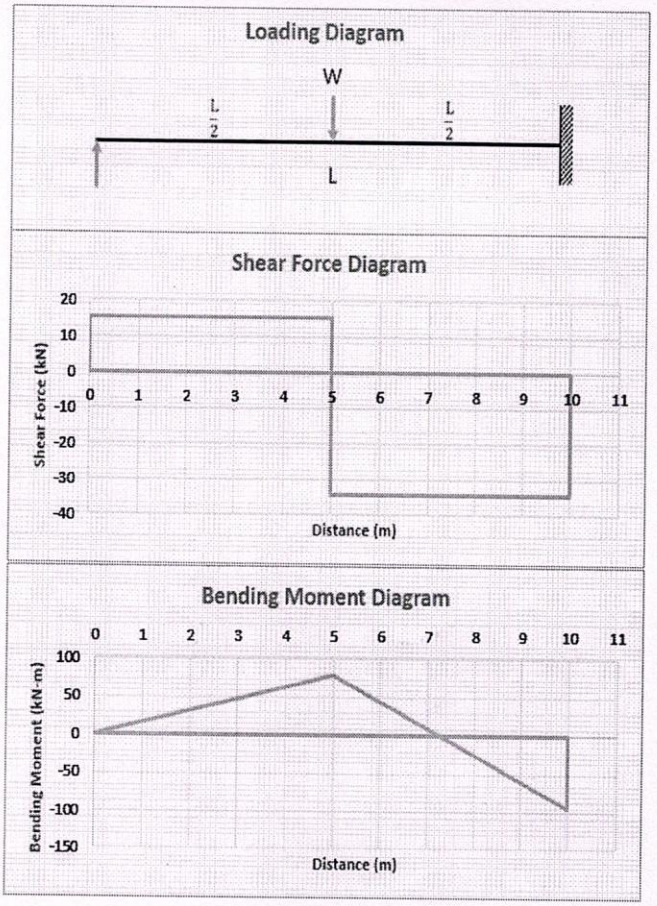
$$R_1 = V_1 = \frac{3wL}{8}$$

$$R_2 = V_2 = \frac{5wL}{8}$$

$$V_x = R_1 - wx$$

$$M_x = R_1 x - \frac{wx^2}{2}$$

Problem-16 Propped Cantilever Beam – Center Point Load



Mathematical expressions

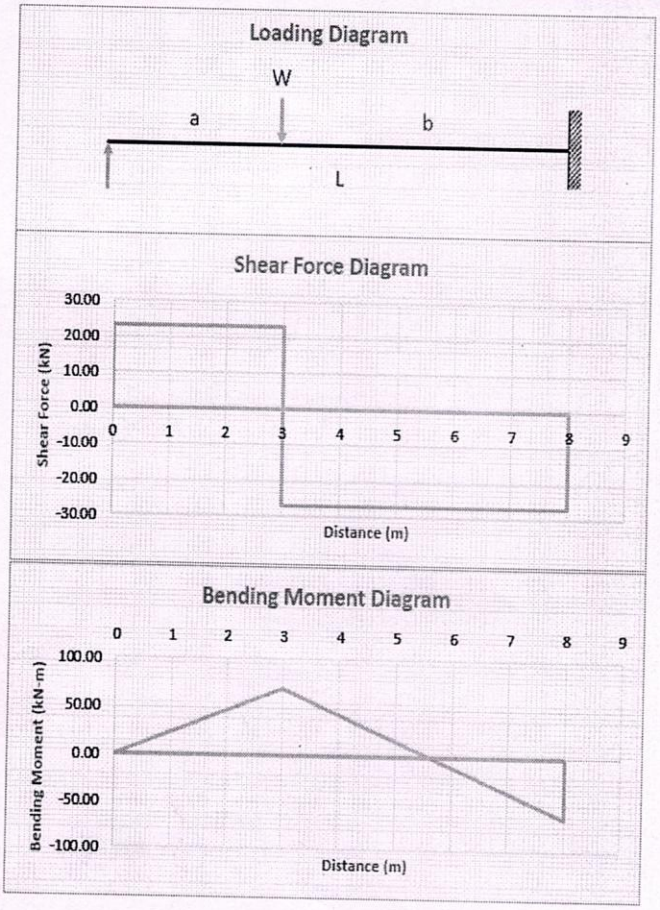
$$R_1 = V_1 = \frac{5W}{16}$$

$$R_2 = V_2 = \frac{11W}{16}$$

$$M_x(\text{when } x < \frac{L}{2}) = \frac{5Wx}{16}$$

$$M_x(\text{when } x > \frac{L}{2}) = W\left[\frac{L}{2} - \frac{11x}{16}\right]$$

Problem-17 Propped Cantilever Beam – Concentrated load at any point



Mathematical expressions

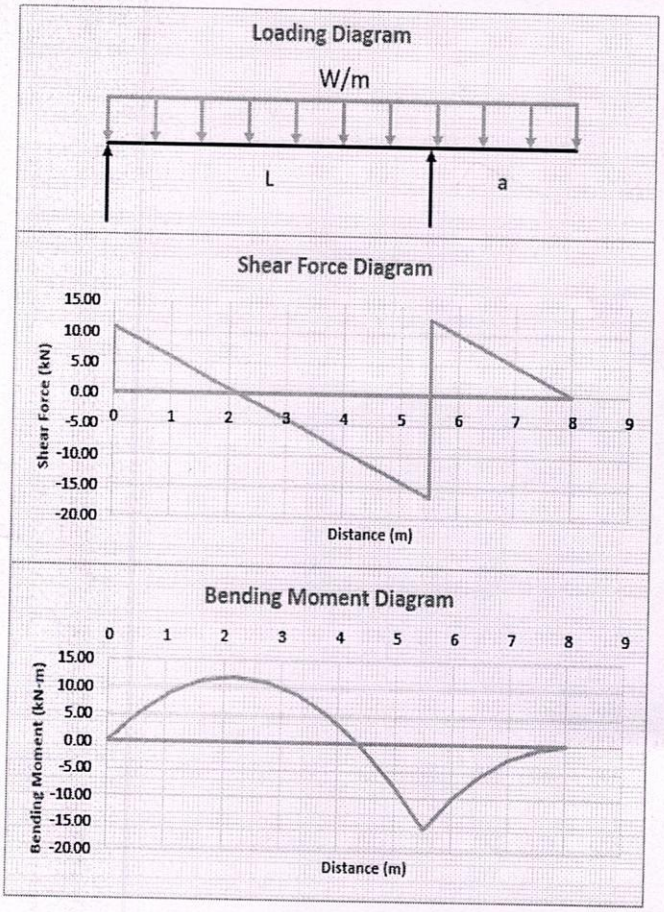
$$R_1 = V_1 = \frac{Wb^2}{2L^3}(a+2L)$$

$$R_2 = V_2 = \frac{Wa}{2L^3}(3L^2 - a^2)$$

$$M_x(\text{when x < L}) = R_1 x$$

$$M_x(\text{when x > L}) = R_1 x - W(x-a)$$

Problem-18 One side Overhanging beam – Uniformly Distributed Load



Mathematical expressions

$$R_1 = \frac{W}{2L}(L^2 - a^2)$$

$$R_2 = \frac{W}{2L}(L^2 + a^2)$$

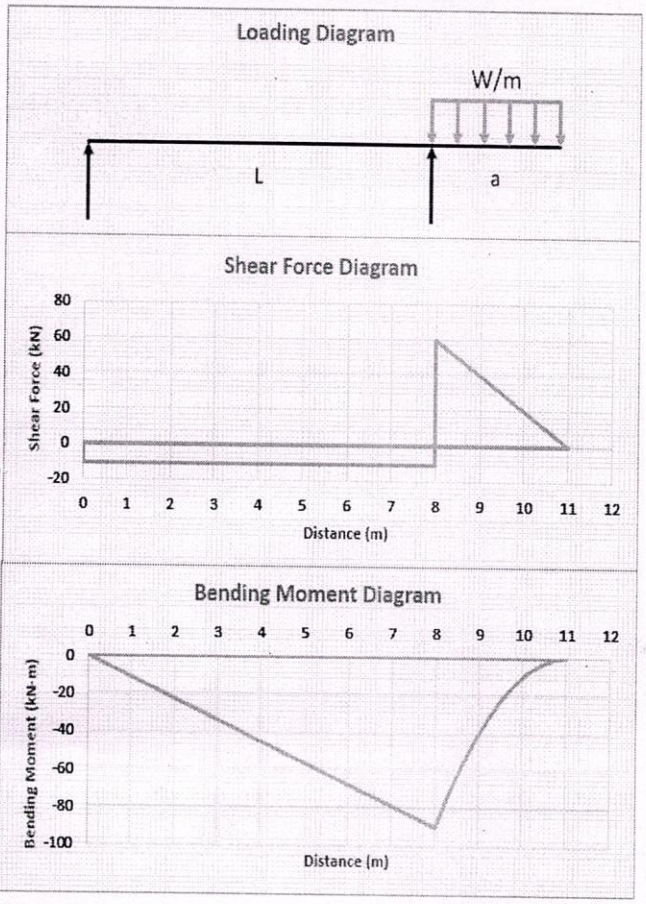
$$V_x(\text{between supports}) = R_1 - wx$$

$$V_{x_1}(\text{for overhanging}) = w(a - x_1)$$

$$M_x(\text{between supports}) = \frac{wx}{2L}(L^2 - a^2 - xl)$$

$$M_{x_1}(\text{for overhanging}) = \frac{w}{2}(a - x_1)^2$$

Problem-19 One side Overhanging beam – Uniformly Distributed Load on Overhang



Mathematical expressions

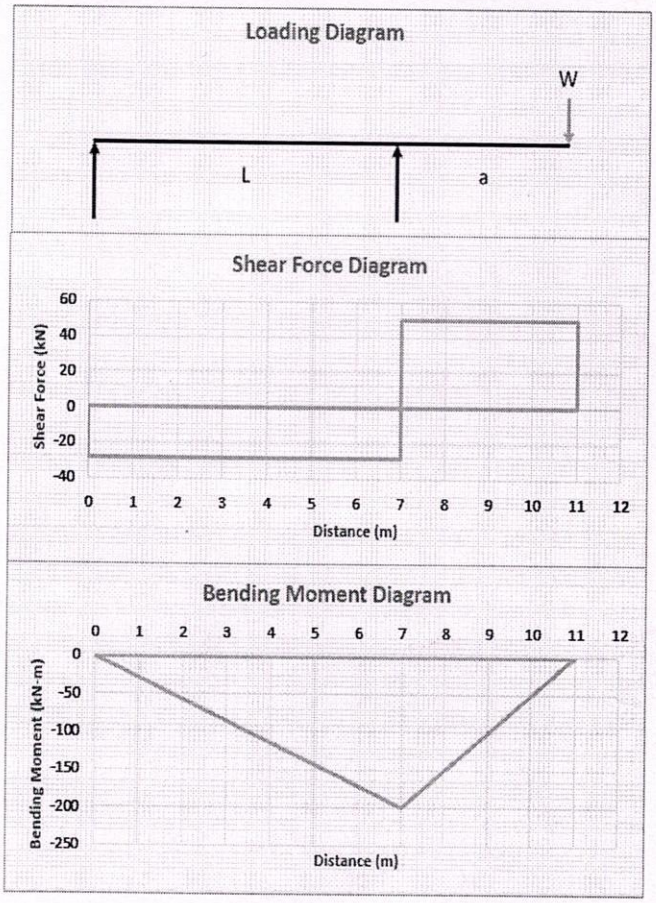
$$R_1 = \frac{Wa^2}{2L}$$

$$R_2 = \frac{Wa}{2L}(2L + a)$$

$$M_x(\text{between supports}) = \frac{wa^2x}{2L}$$

$$M_{x_1}(\text{for overhang}) = \frac{w}{2}(a - x_1)^2$$

Problem-20 One side Overhanging beam – Concentrated Load at End of Overhang



Mathematical expressions

$$R_1 = \frac{Wa}{L}$$

$$R_2 = \frac{W}{L}(L + a)$$

$$M_x(\text{between supports}) = \frac{Wax}{L}$$

$$M_{x_1}(\text{for overhang}) = W(a - x_1)$$

K.S.R.M College of Engineering

(AUTONOMOUS)
KADAPA, ANDHRA PRADESH, INDIA-516003

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE OF COURSE COMPLETION

This certificate is presented to

Pavankumarreddy S. (Reg. No. 199Y1A0145), Student of KSRM College of Engineering (Autonomous) for successful completion of certification course on "Beam design formulae with shear force and bending moment diagrams" offered by Department of Civil Engineering, KSRMCE-Kadapa.

Course Duration: 30 Hours;
From 09/11/20 to 27/11/20

Course Instructor:
Dr. V. Ramesh Babu,
Assistant Professor, CE, KSRMCE-Kadapa

B.Smi
Coordinator

Head of the Department

V.S.S. Murthy
Principal

K.S.R.M College of Engineering

(AUTONOMOUS)
KADAPA, ANDHRA PRADESH, INDIA-516003

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE OF COURSE COMPLETION

This certificate is presented to

Imran Shaik (Reg. No. 199Y1A0153), Student of KSRM College of Engineering (Autonomous) for successful completion of certification course on "Beam design formulae with shear force and bending moment diagrams" offered by Department of Civil Engineering, KSRMCE-Kadapa.

Course Duration: 30 Hours;
From 09/11/20 to 27/11/20

Course Instructor:
Dr. V. Ramesh Babu,
Assistant Professor, CE, KSRMCE-Kadapa

B. Swami
Coordinator

Head of the Department

Principal

K.S.R.M College of Engineering

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DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE OF COURSE COMPLETION

This certificate is presented to

Zareena Tasneem S. (Reg. No. 199Y1A0163), Student of KSRM College of Engineering (Autonomous) for successful completion of certification course on "Beam design formulae with shear force and bending moment diagrams" offered by Department of Civil Engineering, KSRMCE-Kadapa.

Course Duration: 30 Hours;
From 09/11/20 to 27/11/20

Course Instructor:
Dr. V. Ramesh Babu,
Assistant Professor, CE, KSRMCE-Kadapa

B. Swami
Coordinator

Head of the Department

V. S. S. Murthy
Principal

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DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE OF COURSE COMPLETION

This certificate is presented to

Palakondaiah Y. (Reg. No. 199Y1A0173), Student of KSRM College of Engineering (Autonomous) for successful completion of certification course on "Beam design formulae with shear force and bending moment diagrams" offered by Department of Civil Engineering, KSRMCE-Kadapa.

Course Duration: 30 Hours;
From 09/11/20 to 27/11/20

Course Instructor:
Dr. V. Ramesh Babu,
Assistant Professor, CE, KSRMCE-Kadapa

B. Sumi
Coordinator

Head of the Department

V. S. S. Murty
Principal

Department of Civil Engineering

Feedback of students on Certification Course on
Beam design formulae with shear force and bending moment diagrams

Sl. No.	Reg. No.	Name of The Student	Do you understand the application of Excel for BMD and SFD?	Are the lecture hours sufficient to cover the topics?	Rate the course instructor	Is this course useful for your Carrier?	Rate the entire course?
1	199Y1A0101	Avinash Kumar Boggiti	Yes	Yes	5	Yes	5
2	199Y1A0102	Sampurna Rani Bollavaram	Yes	Yes	5	Yes	4
3	199Y1A0103	Suryanarayana Byrisetty	Yes	Yes	5	Yes	5
4	199Y1A0105	Shanmukha Sai Sreenivasa Reddy C	Yes	Yes	4	Yes	5
5	199Y1A0106	Haritha Chinamadula	Yes	Yes	4	Yes	4
6	199Y1A0107	Arun Kumar Dantham	Yes	Yes	5	Yes	5
7	199Y1A0108	Anusha Dhamerla	Yes	Yes	5	Yes	5
8	199Y1A0109	Chennakeshava Dirasantha	Yes	Yes	5	Yes	5
9	199Y1A0110	Mahamad Javid Gajula	Yes	Yes	5	Yes	5
10	199Y1A0112	Suneel Giddaluru	Yes	Yes	4	Yes	5
11	199Y1A0114	Jagadeesh Gowri Gari	Yes	Yes	4	May be	5
12	199Y1A0115	Faheem Hachhulukatte	Yes	Yes	5	Yes	5
13	199Y1A0116	Venkata Sai Janapati	Yes	Yes	5	Yes	4
14	199Y1A0117	Venkata Surendra Jandlavaram	Yes	Yes	5	Yes	5
15	199Y1A0118	Chaitanya Kanta	Yes	Yes	4	Yes	5

16	199Y1A0119	Vekrishna Yadav Katuboina	Yes	Yes	5	Yes	5
17	199Y1A0120	Kejiya Kola	Yes	Yes	3	Yes	4
18	199Y1A0121	Konda Reddy Konda	Yes	Yes	5	Yes	5
19	199Y1A0122	Nagarathna Kumbhagiri	Yes	Yes	5	Yes	5
20	199Y1A0123	Veera Sai Kumar Reddy Lomati	Yes	Yes	5	Yes	5
21	199Y1A0124	Jagadeesh Manjula	Yes	Yes	5	May be	5
22	199Y1A0126	Jagan Mohan Midde	Yes	Yes	5	Yes	5
23	199Y1A0127	Yagna Priya Moram	Yes	Yes	5	Yes	5
24	199Y1A0128	Naveen Motupalli	Yes	Yes	5	Yes	5
25	199Y1A0129	Saitejesh Reddy Mudupunamala	Yes	Yes	5	Yes	5
26	199Y1A0131	Harsha Vardhan Mundlapati	Yes	Yes	5	Yes	5
27	199Y1A0132	Sesha Sai Naga	Yes	Yes	4	Yes	5
28	199Y1A0133	Venkata Siva Pagidi	Yes	Yes	4	May be	4
29	199Y1A0135	Suresh Reddy Pemmireddy	Yes	Yes	5	Yes	5
30	199Y1A0136	Arfathulla Khan Phatan	Yes	Yes	5	Yes	5
31	199Y1A0137	Praveen Kumar Ponna	Yes	Yes	5	Yes	5
32	199Y1A0139	Manjunath Poola	Yes	Yes	5	Yes	5
33	199Y1A0141	Divya Ragi	Yes	Yes	5	Yes	5
34	199Y1A0143	Hima Bindu Ravella	Yes	Yes	5	Yes	5
35	199Y1A0145	Pavankumarreddy Salindra	Yes	Yes	5	Yes	5
36	199Y1A0146	Mahammad Salivemula	Yes	Yes	3	May be	4

37	199Y1A0147	Sudharshan Sandella	Yes	Yes	5	Yes	5
38	199Y1A0148	Surendra Sanduboina	Yes	Yes	5	Yes	5
39	199Y1A0149	Nagarjuna Savali	Yes	Yes	5	May be	5
40	199Y1A0150	Aswak Shaik	Yes	Yes	4	Yes	4
41	199Y1A0151	Babavazeeru Shaik	Yes	Yes	5	Yes	5
42	199Y1A0153	Imran Shaik	Yes	Yes	5	Yes	5
43	199Y1A0156	Muhammad Aatif Shaik	Yes	Yes	5	Yes	5
44	199Y1A0158	Kavitha Sirangi	Yes	Yes	5	Yes	5
45	199Y1A0159	Venkata Sai Pavan Sravanaboina	Yes	Yes	4	Yes	4
46	199Y1A0160	Rajesh Reddy Sreereddy	Yes	Yes	5	Yes	5
47	199Y1A0161	Surendra Suraboina	Yes	Yes	5	Yes	5
48	199Y1A0162	Mohammed Junaid Syed	Yes	Yes	5	Yes	5
49	199Y1A0163	Zareena Tasneem Syed	Yes	Yes	5	Yes	5
50	199Y1A0164	Anil Kumar Reddy Thummala	Yes	Yes	4	Yes	4
51	199Y1A0165	Sunil Kumar Thute	Yes	Yes	4	Yes	5
52	199Y1A0166	Venkata Sai Yeshaswini Uppu	Yes	Yes	4	May be	4
53	199Y1A0167	Chandrasekhar Vadde	Yes	Yes	5	Yes	5
54	199Y1A0168	Shaik Fayaz Hussain Vanipenta	Yes	Yes	5	Yes	5
55	199Y1A0169	Sreenivasulu Varadhigandla	Yes	Yes	5	Yes	5
56	199Y1A0170	Prathyusha Yambadi	Yes	Yes	5	Yes	5
57	199Y1A0172	Bramhini Yeddula	Yes	Yes	5	May be	5

58	199Y1A0173	Palakondaiah Yeddulakondu	Yes	Yes	4	May be	5
59	199Y1A0174	Mounika Yerragudipadu	Yes	Yes	5	Yes	5

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Coordinators

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