

School of Aeronautics (Neemrana)

I-04, RIICO Industrial Area, Neemrana, Dist. Alwar, Rajasthan

Approved by Director General of Civil Aviation, Govt. of India, All India Council for Technical Education
Ministry of HRD, Govt of India & Affiliated to Rajasthan Technical University, Kota & BTU, Bikaner Rajasthan

Question Paper For Internal Assessment Examination (Theory) - Credit 2 / 112

Instructions for Students / Faculty

Mid Term I (Total 40 Marks, 1.5 HRS., Syllabus from Unit-1)

- Part A: Total number of questions to be given are four (2 from CO1 and 2 from CO2), each carrying 2 marks and are compulsory to attend. There is no choice. They are short answer type questions (**Not More Than 25 Words for Both Question & Answer**), no objective type or fill in the blanks. Total 8 marks.
- Part B: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student has to answer four (2 from CO1 and 2 from CO2). They are long answer type (**Not More Than 50 Words for Question Only**), each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO1 and 2 from CO2), out of which student has to answer two (1 from CO1 and 1 from CO2). They are numerical answer type / fully elaborative type* (**Not More Than 70 Words for Question Only**), each carrying 8 marks. Total 16 marks.

Mid Term II (Total 60 Marks, 2 HRS., Syllabus from Unit- 2)

- Part A: Total number of questions to be given are ten (5 from CO3 and 5 from CO4), each carrying 2 marks and are compulsory to attend. There is no choice. They are short answer type questions (**Not More Than 25 Words for Both Question & Answer**), no objective type or fill in the blanks. Total 20 marks.
- Part B: Total number of questions to be given are six (3 from CO3 and 3 from CO4), out of which student has to answer four (2 from CO3 and 2 from CO4). They are long answer type (**Not More Than 50 Words for Question Only**), each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO3 and 2 from CO4), out of which student has to answer any two (1 from CO3 and 1 from CO4). They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question Only**)*, each carrying 12 marks. Total 24 marks.

Mid Term III (Total 60 Marks, 2 HRS., Syllabus from Unit- 3)

- Part A: Total number of questions to be given are ten (5 from CO5 and 5 from CO6), each carrying 2 marks and are compulsory to attend. There is no choice. They are short answer type questions (**Not More Than 25 Words for Both Question & Answer**), no objective type or fill in the blanks. Total 20 marks.
- Part B: Total number of questions to be given are six (3 from CO5 and 3 from CO6), out of which student has to answer four (2 from CO5 and 2 from CO6). They are long answer type (**Not More Than 50 Words for Question Only**), each carrying 4 marks. Total 16 marks.
- Part C: Total number of questions to be given are four (2 from CO5 and 2 from CO6), out of which student has to answer any two (1 from CO5 and 1 from CO6). They are numerical answer type / fully elaborative type (**Not More Than 70 Words For Question Only**)*, each carrying 12 marks. Total 24 marks.

* LIST OF ELABORATIVE THEORY QUESTION SUBJECTS: 1 FY1 - 04 Communication Skills (Cr 2), 1 FY1 - 05 Human Values (Cr 2), 2 FY1 - 04 Communication Skills (Cr 2), 2 FY1 - 05 Human Values (Cr 2), 3 AN1 - 02 Technical Communication (Cr 2), 4 MH1 - 02 Technical Communications (Cr 2), 4 MH1 - 03 Economics and Financial Accounting (Cr 2), 5 AN5 - 12 Aircraft Maintenance Practices (Cr 2), 6 AN3 - 01 Mechanics of Composite Materials (Cr 2), 6 AN5 - 12 Aircraft Rules and Regulation (Cr 2), 6 MH3 - 01 Automobile Engineering (Cr 2).

Instructions For Faculties:

There should be total 6 Course Outcomes (COs) for each subject.

- Mid Term Question Papers are to be submitted as per Course Outcomes (COs) which should be divided equally in Part A, Part B and Part C according to Mid Term Examination and Credit Point.
- In Mid Term-1, the questions are to be given from CO1 and CO2. In Mid Term-2, the questions are to be given from CO3 and CO4. Similarly, in Mid Term-3, the questions are to be given from CO5 and CO6.
- FACULTY MEMBERS, PLEASE ENSURE EXCEPT ABOVE LISTED SUBJECTS, NO THEORITICAL ELABORATIVE QUESTION SHOULD BE GIVEN IN PART 'C' OF QUESTION PAPER**

INSTRUCTION FOR STUDENTS

- STUDENT IS ALLOWED TO ENTER LATE NOT MORE THAN 15 MIN AFTER STARTING OF EXAM, AND MAY LEAVE THE EXAM HALL ON EXPIRY OF ATLEAST OF 1 Hr FROM THE STARTING TIME OF EXAMINATION.**

Question Paper & Student Details

Type of Exam	Mid Term 2	Date of Submission	21/06/2021
Name of Faculty	GOURAV SARDANA	Date of Examination	28/06/2021
Course	B.Tech (Aeronautical Engineering)	Semester	SEMESTER : 6
Batch	Fifteenth (15)	Subject	6 AN3 - 01 Mechanics of Composite Materials (Cr 2)

COURSE OUTCOMES FOR REFERENCE TO FRAME QUESTION PAPER


(Faculties are required to mention relevant Course Outcome number against the respective question in QP)

Course Outcome	6 AN3 - 01: COURSE OBJECTIVE COURSE OUTCOME Upon completion of the course, Students will be able to CO 3. Solve problems in Manufacturing of Composites materials. CO 4. Analyze the Elastic Behavior of Composite Lamina-Micromechanics.
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Student Name			Student Reg No.	
Part A				
INSTRUCTIONS FOR PART A: ALL THE QUESTIONS ARE COMPULSORY TO ATTEND				
1. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.				3
Question : 1	Define Moulding .			
Lesson Plan No. - 7	Topic - Moulding Process	Source - Allen Baker, Composite Materials for Aircraft Structures		CO No. -
Question : 2	Define Wet layup Process.			
Lesson Plan No. - 7	Topic - Moulding Process	Source - Allen Baker, Composite Materials for Aircraft Structures		CO No. -
Question : 3	Define the material used for vacuum bag.			
Lesson Plan No. - 8	Topic - Moulding Process	Source - Allen Baker, Composite Materials for Aircraft Structures		CO No. -
Question : 4	Define SMC and BMC .			
Lesson Plan No. - 8	Topic - Types of Moulding Process	Source - Allen Baker, Composite Materials for Aircraft Structures		CO No. -
Question : 5	Define the meaning of prepreg .			
Lesson Plan No. - 10	Topic - Types of Moulding Process	Source - Allen Baker, Composite Materials for Aircraft Structures		CO No. -
2. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.				4
Question : 6	Define Volume Fraction.			
Lesson Plan No. - 12	Topic - Volume Fraction	Source - Agarwal, B.D		CO No. -
Question : 7	Define mass fraction in composites.			
Lesson Plan No. - 12	Topic - Volume and mass Fraction	Source - Agarwal, B.D		CO No. -
Question : 8	Define Micromechanics .			
Lesson Plan No. - 13	Topic - Mechanical Behaviour	Source - Agarwal, B.D		CO No. -
Question : 9	Define Lamina and laminates			
Lesson Plan No. - 13	Topic - Mechanical Behaviour	Source - Agarwal, B.D		CO No. -
Question : 10	Define longitudinal elastic modulus .			
Lesson Plan No. - 14	Topic - Mechanical Behaviour	Source - Agarwal, B.D		CO No. -
Part B				
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FOR MIDTERM 1 - Part B: Total number of questions to be given are six (3 from CO1 and 3 from CO2), out of which student has to answer four (2 from CO1 and 2 from CO2). FOR MIDTERM 2 - Part B: Total number of questions to be given are six (3 from CO3 and 3 from CO4), out of which student has to answer four (2 from CO3 and 2 from CO4). FOR MIDTERM 3 - Part B: Total number of questions to be given are six (3 from CO5 and 3 from CO6), out of which student has to answer four (2 from CO5 and 2 from CO6)

3. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			3
Question : 1	Explain the he principle of the autoclave .		
Lesson Plan No. - 7	Topic - Moulding Process	Source - Allen Baker, Composite Materials for Aircraft Structures	CO No. -
Question : 2	Explain the suitable resin for the vacuum bag molding process .		
Lesson Plan No. - 8	Topic - Moulding Process	Source - Allen Baker, Composite Materials for Aircraft Structures	CO No. -
Question : 3	Explain the different types of Moulding Process.(Only flow chart)		
Lesson Plan No. - 9	Topic - Moulding Process	Source - Allen Baker, Composite Materials for Aircraft Structures	CO No. -
4. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			4
Question : 4	Explain the fiber volume fraction affect the properties of composites		
Lesson Plan No. - 12	Topic - Properties of composites	Source - Agarwal, B.D	CO No. -
Question : 5	Explain the Micromechanics and Macro mechanics approach.		
Lesson Plan No. - 13	Topic - roperties of composites	Source - Agarwal, B.D	CO No. -
Question : 6	Explain Stress- Strain relations of different material projection in Composite materials.		
Lesson Plan No. - 14	Topic - roperties of composites	Source - Agarwal, B.D	CO No. -
Part C			
FOR MIDTERM 1 - Part C: Total number of questions to be given are four (2 from CO1 and 2 from CO2), out of which student has to answer two (1 from CO1 and 1 from CO2). FOR MIDTERM 2 - Part C: Total number of questions to be given are four (2 from CO3 and 2 from CO4), out of which student has to answer any two (1 from CO3 and 1 from CO4). FOR MIDTERM 3 - Part C: Total number of questions to be given are four (2 from CO5 and 2 from CO6), out of which student has to answer any two (1 from CO5 and 1 from CO6).			
5. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			3
Question : 1	Explain the Vacuum Bag Moulding process and Pressure Bag Moulding process with diagram also explain the difference between Vacuum and pressure forming process.		
Lesson Plan No. - 8	Topic - Moulding Process	Source - Allen Baker	CO No. -
Question : 2	Define meaning of Pultrusion process and explain the working process with diagram.		
Lesson Plan No. - 9	Topic - Moulding Process	Source - Allen Baker	CO No. -
6. CHOOSE COURSE OUTCOME (CO) NUMBER ACCORDING TO THE TYPE OF MIDTERM, AS PER INSTRUCTIONS ABOVE.			4
Question : 3	Define Poisson's ratio and explain the Halpin T-Sai equation with diagram		
Lesson Plan No. - 15	Topic - Mechanical Behaviour	Source - Agarwal, B.D.	CO No. -

Question : 4	Explain the transverse properties in composite and draw the arrangement of Matrix and Fiber during loading condition.		
Lesson Plan No. - 14	Topic - Mechanical Behaviour	Source - Agarwal, B.D.	CO No. -
Upload Scanned Document In Case of Numerical or Diagram For Any of The Above Questions. <i>(Mention question number with relevant fig / numerical / equations. Max 150 KB)</i>			
I have scrutinized the question paper. There is no spelling mistake or any type of irrelevant question.			
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