



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

AERONAUTICAL ENGINEERING

TUTORIAL QUESTION BANK

Course Name	:	Aircraft Interior Design
Course Code	:	AAE803
Regulation	:	IARE - R16
Year	:	2019 – 2020
Semester	:	VI Semester
Branch	:	Aeronautical Engineering
Course Coordinator	:	Mr. M Vijay Kumar, Assistant professor, AE

COURSE OBJECTIVES

S.No	Description
I.	Understand the basic ideas about comfort requirements for the passengers.
II.	Learn the Interior design parameters.
III.	Understand the required technology to design Interior of aircraft.
IV.	Discuss the various types of New Demands for Aircraft seats and other interior components.

COURSE OUTCOMES (COs)

S.No	Description
I.	Estimate the comfort zone of the passengers inside the airplane cabin
II.	Understand the concept of interior design comfort levels of a sound and interior of airplane
III.	Estimate about the technological factors about seat flying time and delay etc
IV.	Demonstrate concept of backrest angel and specific dynamic seat characteristics
V.	Analyze the different type of ultra comfortable flight experience inside the cabin crew

COURSE LEARNING OUTCOMES (CLOs)

AAE803.01	The Role of Comfort in Sales and the Difficulty of Making People Feel Comfortable.
AAE803.02	Possible to Make People Feel More Comfortable, Comfort Theory, Comfort Manifestations, Inputs Leading to Discomfort.
AAE803.03	History, State of Mind, Visual Input, Smell, Noise, Temperature and Humidity, Pressure and Touch, Posture and Movements, Persons Influencing the Input.
AAE803.04	Lack of Many Substantial Studies on Aircraft Comfort -A Classic Study, German Study on Aircraft Interior Comfort.

AAE803.05	Experience Preceding the Flight, Experience during the Flight Experience after the Flight, A Study Regarding Service.
AAE803.06	Perceived Value, and Satisfaction in Taiwan, A German Study of Noise, A Dutch Study Regarding Aircraft Interior Comfort.
AAE803.07	Technology Versus Passenger, Innovations Have Their Effects, Study Methodology, Factors Correlating with Comfort.
AAE803.08	Leg Room, Hygiene, Crew, Luggage Room, Neighbor, Seat Flying Time, In-Flight Entertainment.
AAE803.09	Delay, Lost Luggage, Aircraft Type, Direct versus No Direct Flight.
AAE803.10	Using Research for Seat Design, Seat Design and Health, Aircraft Seats Should Fit, Pitch Watchers, Designing an Aircraft Seat Is Difficult.
AAE803.11	Ideal Pressure Distribution, Seating and Shear Forces, Comfort and Seating.
AAE803.12	Specific Dynamic Seat Characteristics, Comfort and “Wow”, Feet off the Ground, Backrest Angle.
AAE803.13	Seating and Electronics, Other Features: Headrests and Massage, Opportunity for Designers.
AAE803.14	The Flight Experience: At Home, Forty-Eight Hours before the Flight, To the Airport, At the Airport.
AAE803.15	The Lounge, Airport Plus, At the Gate, The Plane Entrance, The Long Haul Flight, Business Class, Inexpensive Flight.
AAE803.16	In-Flight Entertainment (IFE), Cleanliness, Crew, Arrival, Leg Room, Service, Hygiene, Luggage Room, Neighbor, Seat, IFE, Delay/Waiting.

TUTORIAL QUESTION BANK

UNIT - I			
Aircraft interior Comfort			
PART - A (SHORT ANSWER QUESTIONS)			
S No	QUESTIONS	Blooms Taxonomy Level	Course Learning Outcomes
1	Explain state of mind which influences whether we experience discomfort or comfort.	Understand	AAE803.01
2	Explain visual input which influences our experiences	Remember	AAE803.01
3	Is Smell also influences our perception of comfort?	Remember	AAE803.01
4	How Noise is a type of input that can influence comfort positively or discomfort negatively.	Understand	AAE803.01
5	Explain the Temperature and humidity related to discomfort.	Remember	AAE803.01
6	Explain different studies show the relationship between pressure and discomfort	Understand	AAE803.01
7	Explain the posture and Movements	Understand	AAE803.02
8	Explain the history influences the experience. This is important for product designers and the crew	Understand	AAE803.02
9	Explain the Factors Influencing Comfort or Discomfort during Sitting with table	Remember	AAE803.02
10	How textures of handles have an influence on the feeling of comfort?	Remember	AAE803.02
PART - B (LONG ANSWER QUESTIONS)			
1	Explain two comfort stories in the survey with 10,032 passengers	Understand	AAE803.01
2	Explain briefly the role of comfort in sales in principle, airlines can increase their profit margin by reducing maintenance costs	Remember	AAE803.01
3	What is the involved difficulty of making people feel comfortable and what is the good news: it is possible to make people feel more comfortable	Remember	AAE803.01

4	Explain the terms a) comfort theory b) comfort manifestations	Understand	AAE803.01
5	What are the factors Influencing Satisfaction or Dissatisfaction and also the three conditions of comfort, in fact, can be distinguished	Understand	AAE803.02
6	What are the inputs leading to (dis)comfort? Explain with The comfort input/output schema.	Remember	AAE803.02
7	Who are the persons influencing the input of the comfort model that can help in determining where the greatest attention is needed	Understand	AAE803.03
8	What are the fields largely manageable by designers and engineers in persons influencing the input	Understand	AAE803.03
9	What are the cases where that ground staff, individuals responsible for Internet service, the pilots and flight attendants	Remember	AAE803.03
10	Explain The discomfort pyramid based on the work of Bubb with a schematic diagram	Understand	AAE803.03

UNIT - II

Aircraft Interior Comfort Studies

PART - A (SHORT ANSWER QUESTIONS)

1	Write about Experience Preceding the Flight.	Remember	AAE803.04
2	What are IFE problems?	Understand	AAE803.04
3	Explain in brief what is Fear of flying?	Understand	AAE803.04
4	What is Familiarity with the aircraft?	Understand	AAE803.05
5	What is Reputation of the airline?	Understand	AAE803.05
6	Explain how Konieczny distinguishes different comfort stages.	Remember	AAE803.06
7	Write short note on Factor of Employees/facilities.	Remember	AAE803.06
8	Explain briefly about the Factor of Product.	Remember	AAE803.06
9	Write about the Factor of Transaction.	Remember	AAE803.06
10	Write about the Factor of Reliability.	Remember	AAE803.06

PART - B (LONG ANSWER QUESTIONS)

1	Write in detail about German study on aircraft interior comfort and different comfort stages.	Remember	AAE803.03
2	Explain in detail about Experience during the Flight and different group factors in it.	Remember	AAE803.03
3	Explain in detail about Experience after the Flight and different group factors in it.	Remember	AAE803.03
4	Write in detail about a German study of noise they studied the impact of noise and vibration on well-being during long-haul flights as well as in aircraft simulators.	Remember	AAE803.04
5	Explain in detail about A Dutch study regarding aircraft interior comfort.	Remember	AAE803.04
6	Write about The problems described in the 291 trip reports analyzed in the study of Blok, Vink, and Kamp.	Remember	AAE803.04
7	Explain about A U.S. study regarding passenger experience and comparison that showed the correlation between cabin width per seat and passenger preference for seated eye level.	Remember	AAE803.05
8	What are Discrete Elements Preceding the Flight Influencing Aircraft Passenger Comfort?	Remember	AAE803.06
9	What is the Discrete Elements Influencing Aircraft Passenger Comfort?	Remember	AAE803.06
10	Explain in detail about the Results of the Exploratory Factor Analysis of Service Expectation	Remember	AAE803.06

UNIT-III			
The Voices Of Customers			
PART - A (SHORT ANSWER QUESTIONS)			
1	What happens if the passenger becomes very dissatisfied with his journey?	Remember	AAE803.07
2	Write about correlation between Lost Luggage and comfort?	Understand	AAE803.07
3	Write about Leg Room & Hygiene?	Understand	AAE803.07
4	Write about correlation between Delay and comfort	Understand	AAE803.07
5	What are the factors of In-Flight Entertainment	Understand	AAE803.08
6	Write about the factor of Crew.	Remember	AAE803.08
7	Write about the factor of reflection.	Remember	AAE803.08
8	Write about the factor of Neighbor.	Remember	AAE803.08
9	Write about the factor of Seat.	Remember	AAE803.09
10	Write about the factor of fly again.	Remember	AAE803.09
PART - B (LONG ANSWER QUESTIONS)			
1	Explain in detail about study methodology and how it is conducted.	Remember	AAE803.07
2	Justify with necessary examples that the statement voice of the customer is critical.	Remember	AAE803.07
3	What is the correlation between hygiene and the comfort score? Explain in detail.	Remember	AAE803.08
4	What is linear correlation between flying time and comfort? And justify that a higher correlation means a stronger relationship between comfort and the factor.	Remember	AAE803.08
5	Explain in detail how leg room is strongly connected to aircraft interior comfort.	Remember	AAE803.08
6	Write in detail about Direct versus No Direct Flight.	Remember	AAE803.09
7	Explain in detail about the correlation between aircraft type and comfort score with neat sketch.	Remember	AAE803.09
8	Explain factors correlating with comfort & aspects which are mentioned in 8 percent of the trip reports.	Remember	AAE803.09
9	What is the difference between Comfort of Older Planes and Newer Planes?	Remember	AAE803.10
10	What are the Examples of negative comments on the crew included& positive comments on the crew included?	Remember	AAE803.10
11	What is the relationship between comfort and leg room & draw a rough diagram showing that pitch alone does not determine the leg room.	Remember	AAE803.10
UNIT-IV			
New Demands for Aircraft Seats			
PART - A (SHORT ANSWER QUESTIONS)			
1	Explain the steps involved for engineering, or designing an aircraft seat.	Remember	AAE803.13
2	Write short note on seat design and health?	Remember	AAE803.14
3	How can you say “this seat has a good pitch” Justify?	Understand	AAE803.14
4	What are the environmental requirements for designing an aircraft seat?	Understand	AAE803.15
5	Explain about Ideal pressure distribution?	Understand	AAE803.15
6	What is the ideal seat pan angle?	Understand	AAE803.15
7	Explain what is comfort rating?	Remember	AAE803.15
8	What are the tests conducted in testing the seat comfort?	Understand	AAE803.16
9	What is “swing system,”?	Understand	AAE803.16
10	What are measures involved in obtaining seat comfort?	Remember	AAE803.16

PART - B (LONG ANSWER QUESTIONS)			
1	Explain in detail, what are Specific dynamic seat characteristics?	Understand	AAE803.14
2	Explain in detail what are the specific dynamic features of the first chair?	Remember	AAE803.14
3	What is MRI (magnetic resonance imaging)?explain in detail	Understand	AAE803.14
4	Justify the statement “Feet off the ground”	Remember	AAE803.14
5	What is the most comfortable backrest angle?	Remember	AAE803.15
6	Find the optimal posture?	Understand	AAE803.15
7	Explain in detail what is the Reliability factor?	Remember	AAE803.15
8	What are difficulties involved in designing an aircraft seat?	Understand	AAE803.15
9	What are The Boeing guidelines for seat comfort?	Understand	AAE803.16
10	How an Aircraft seats should fit? Explain in detail?	Understand	AAE803.16
UNIT-V			
The Ultra Comfortable Flight Experience and Analysis on Aircraft Interior Comfort and Design			
PART - A (SHORT ANSWER QUESTIONS)			
1	What is pitch watcher?	Remember	AAE803.13
2	What are the different requirements for designing an aircraft?	Remember	AAE803.14
3	What is shear force on the aircraft seat?	Understand	AAE803.14
4	What is the most comfortable backrest angle?	Understand	AAE803.15
5	Define electromyography or EMG.	Understand	AAE803.15
6	How pressure sensors are positioned in the seat.	Understand	AAE803.15
7	What is the minimum distance between two armrests?	Remember	AAE803.15
8	What legroom space leads to more comfort?	Understand	AAE803.16
9	Plot backrest inclination vs seat inclination in degrees.	Understand	AAE803.16
10	Define specific dynamic seat characteristics.	Remember	AAE803.16
PART - B (LONG ANSWER QUESTIONS)			
1	Explain the importance of ideal pressure distribution in aircraft interior designing.	Understand	AAE803.14
2	What is the thickness or space required to get a comfort grade for a seat according to Boeing guidelines?	Remember	AAE803.14
3	Explain the importance of seating and comfort in designing.	Understand	AAE803.14
4	What is feet of the ground and explain briefly?	Remember	AAE803.14
5	What is backrest angle? Explain about backrest angle with suitable examples.	Remember	AAE803.15
6	Explain in detail the concept of seat design and health	Understand	AAE803.15
7	Explain the various difficulties in the seating arrangement of aircraft.	Remember	AAE803.15
8	What are the specific dynamic seat characteristics and explain in detail?	Understand	AAE803.15
9	Explain how “WOW” experience plays vital role in product design.	Understand	AAE803.16
10	What is headrest? Discuss the importance of headrest in aircraft seating arrangement.	Understand	AAE803.16

Prepared by:
M Vijay Kumar

HOD, AE