INSTITUTEOFAERONAUTICALENGINEERING

(Autonomous)
Dundigal, Hyderabad-500043

AIRBONE RADAR SYSTEMS

TUTORIAL QUESTION BANK

Course Title	**AIRBORNE RADAR SYSTEMS**			
Course Code	AAE808			
Programme	B.Tech			
Semester	VII	AE		
Course Type	SKILL			
Regulation	IARE - R16			
Course Structure	**Theory**			**Practical**	
	Lectures	**Tutorials**	**Credits**	**Laboratory**	**Credits**
	-	-	-	-	-
Chief Coordinator	Mr. Kasturi Rangan, Assistant Professor				
Course Faculty	Mr. Kasturi Rangan, Assistant Professor				

COURSE OBJECTIVES:

The course should enable the students to:	
I	Understand the concepts of Phased array antennas and detection of moving targets
II	Analyse the Radars requirements and wavefronts
III	Identify the Advantages and constraints of tracking radars
IV	Learn the concepts of radar systems for aircraft in landing and other aids

TUTORIAL QUESTION BANK

S.NO	QUESTIONS
	UNIT -I
	INTRODUCTION TO RADAR
S.NO	**QUESTIONS**
1	Desrcibe a ballistic missile
2	Describe a ultrahigh frequency (UHF) range
3	What is Aerial Reconnaisance
4	Describe the N-class blimp aircraft.
5	Describe Air controlled Interception
6	Describe the early warning radar system
7	What is the speed of sound?
8	What is Mach Number
9	What is Reynolds Number?
10	What is AoA?
11	What is C-Scope?
	PART B
1	What is an Airborne Early Warning Control?
2	What is an over ground target?
3	Define the different types of radar systems
4	What are the different types of Warning systems?
5	Define AWACS
6	What is airborne combat radar?
7	Discuss the ranges, accuracies and rates at which the radar data is required
8	Discuss multi mode radar
9	Discuss antenna scanning
10	What is an airborne combat radar?
11	Discuss the rendezvous of a radar?
12	Discuss electronic jamming
13	What is a continuous wave radar?
14	What is a mapping radar?
15	Discuss the passive radar.
	UNIT –II
	TYPES OF RADARS
	PART - A
1	Desrcibe a ballistic missile
2	Describe a ultrahigh frequency (UHF) range
3	What is Aerial Reconnaisance
4	Describe the N-class blimp aircraft.
5	Describe Air controlled Interception
6	Describe the early warning radar system (EWACS)
7	What is the speed of sound?
8	What is Mach Number
9	What is Reynolds Number?
10	Describe about the early radar development.
11	Describe the squegging oscillator
	PART B
1	Discuss the bistatic radar
2	What is a continuous wave radar
3	What is a Doppler radar
4	What is a monopulse radar
5	What is a navigational radar
6	What is a instrumentation radar
7	Discuss about the Doppler radar

8	Define the various aspects of the Doppler effect
9	Discuss the monopulse radar
10	Discuss the planar array radar
11	Discuss the synthetic aperture radar
12	Discuss the Fm-cw radar
13	Discuss the Chirp transmitter
14	Discuss the bistatic radar
15	Discuss the Anti-Aircraft artillery

UNIT –III

RADAR SIGNAL PROCESSING

PART - A

1	What is a characteristic radar dome?
2	What is airborne Doppler navigation?
3	What is spaceborne radar?
4	What is jemlines radar
5	What is radar stt?

PART B

1	Discuss the radar requirements such as matched filters.
2	Discuss Optimum waveforms
3	Discuss the different classes of waveforms
4	Discuss the digital representation of signals
5	Discuss pulse compression
6	Discuss the radar ambiguity function
7	What is a Kalman tracker?
8	Discuss the classes of waveforms
9	Discuss the optimum waveforms for detection in clutter.
10	Discuss the pulse compression.
11	Discuss the accuracy of the kalman tracker.
12	Discuss about monopulse tracker
13	What is the effect of the Doppler effect?
14	Discuss about microwave radars
15	What is the beacon system?

UNIT –IV

RADAR SIGNAL PROCESSING

1	What are the types of monopulse types?
2	What is the conical scan and sequential lobing?
3	Discuss about the Doppler weather
4	What are the applications of the microwave radar?
5	What is the air traffic control beacon system?
6	Discuss about the Digital MTI radars
7	Discuss the synthetic aperture radar
8	What are the classes and types of pulse compression
9	Discuss the Doppler effect
10	What is the frequency modulation (FM)
11	Discuss about the inertial navigation system (INS)
12	Provide details on how the various flights are tracked in the sky
13	What are the types of radar guns?
14	What is radio navigation?
15	Discuss the transit satellite navigaton system

UNIT –V

FLIGHT RADAR SYSTEM

1	Discuss about the pulse-doppler signal processing
2	What is a spectrum analyzer?
3	Define track-before detect

4	Discuss interference effects.
5	Define and explain the nearest neighbor algorithm
6	What is a transmitter and a waveguide?
7	Define the parabolic reflector
8	Define the NEXRAD pulse-doppler weather radar
9	What is a conical scan?
10	What is a palmer scan?
11	What is a slotted waveguide?
12	Define a phased array
13	Define the various frequency bands
14	What are the modulators
15	Discuss about travelling wave tubes.

Prepared by:
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