B.S. Abdur Rahman Crescent Institute of Science & Technology

COURSE PLAN

1. Course Title : Air Traffic Control and Aerodrome Design

2. Course Code : AEBX18

3. Course Faculty : Mr.M.Magesh

4. Theory / Practical : Theory

5. Semester : VIII

6. Academic Year : 2018-19

7. Department : Aero

8. No. of Credits : 3

9. Course Learning Objectives:

- To introduce the procedures of for air traffic services and navigations.

10. Course pre-requisites:

- Avionics
- Aircraft Systems and Instrumentation

11. Schedule of Teaching and Learning

Sl.No.	Period	Topic	Mode of delivery	Teaching Aids	Reference / Source
[Furnished as Annexure]					

Teaching aids involved:

Traditional	ICT	Experimental	Simulated	Participating	Any other
30	30	NIL	NIL	20	20

12. Course Material and References

- A list of reference books is given along with lesson plan.

13. Assessment Scheme:

- Written Examination
  - Periodic Tests, CAT (30%)
  - Final Examination (50%)
- Continues Assessments
  - Assignment (10%)
  - Seminar (10%)

i) **Periodical tests.**

Two numbers of period tests (CAT 1/2) of 90 minutes duration will be conducted. Maximum mark allotted is 50 Marks for each test.

ii) **Assignment.**

A set of assignment questions will be given one week in advance. Students will be asked to submit the assignment before each continuous assessment.Marks allotted for each test is 10%.

iii) **Seminar**

Students will be asked to take 10 minutes seminar individually on emerging topics of ATC. Marks allotted for each test is 10%.

iv) **Carry Home Exercise**

Aerodrome runway design diagram will be given as home exercise.

v) **Self Study**

Various Separation process followed in various civil aviation authority in module 2 is planned

vi) **Content Beyond Syllabus**

A brief report about application of runway lighting system in runways is to be submitted by individual student.

14. Course outcomes

After completion of the course students will able to

- Acquire knowledge of the basic terminology of air traffic control and operation of aircraft in various airspaces.
- Apply the separation rules between two aircrafts in air laterally, vertically and horizontally.
- Acquire knowledge of the flow of traffic using various RADAR systems.
- Apply the emergency procedure and obstacle avoidance in and around the airports.
- Be familiar with various aerodrome terminology and classification of aerodromes.
- Gain knowledge of the aircraft's landing procedure using the various runway markings and lighting systems.

Date:

15. Mapping of course outcomes with learning activities and assessments

Course outcomes	Assessments	CAT I * %	CAT II * %	End sem * %
Course outcome 1 & 2	Continuous Assessment test, Assignment, Seminar, End sem.	70%		40-45%
Course outcome 3 & 4	Continuous Assessment test, Assignment, Seminar, End sem.	30%	70%	40-45%
Course outcome 5 & 6	Continuous Assessment test, Assignment, Seminar, End sem.		30%	10-20%

**% of marks in the question paper relevant to the respective outcomes*

Date: 07-01-19.

Course faculty Mukesh. M 07/01/19.

Head of the Department

7/1/19

ANNEXURE (vide item 11)
Schedule of Teaching and Learning

UNIT No	Topics to be covered	Duration in Periods	Teaching method BB/PP/Video
Module I	**BASIC CONCEPTS**		
	Objectives of ATS - parts of ATC	1	BB
	scope and provision of ATCs	1	BB/PP
	VFR & IFR operations – classification of ATS air spaces	2	BB/PP
	varies kinds of separation – altimeter setting procedures	2	BB/PP
	Establishment, designation and identification of units providing ATS	2	Assignment
	Division of responsibility of control	1	BB/PP
	Total Periods	09	
Module II	**AIR TRAFFIC SERVICES**		
	Area control service, assignment of cruising levels minimum flight altitude ATS routes and significant points	1	BB
	RNAV and RNP	1	BB
	Vertical, lateral and longitudinal separations based on time / distance	4	BB/PP
	ATC clearances	1	BB/PP
	Flight plans	1	BB/PP
	Position report	1	Crafting of Separation
	Total Periods	09	
Module III	**FLIGHTINFORMATION ALERTING SERVICES, COORDINATION**		
	Radar service, basic radar terminology	1	BB/PP
	Identification procedures using primary / secondary radar	1	BB/PP
	Performance checks	1	BB/PP
	Use of radar in area and approach control services	1	BB/PP
	Assurance control and co-ordination between radar / non radar control	1	Field Visit to ATC Center
	Total Periods	05	
Module IV	**EMERGENCY PROCEDURES AND RULES OF THE AIR**		
	Emergencies	1	BB/PP
	Flight information and advisory service	1	BB/PP
	Alerting service	1	BB/PP
	Co-ordination and emergency procedures	1	BB/PP
	Rules of the air	1	Field Visit to ATC Center
		05	
Module V	**AERODROME DATA, PHYSICAL CHARACTERISTICS AND OBSTACLE RESTRICTION**		
	Aerodrome data, basic terminology	2	BB/PP
	Aerodrome reference code – Aerodrome reference point – Aerodrome elevation – Aerodrome	2	BB/PP

"PANS – RA(ICAC)C 4444", Late Edition, Th English Boc Store, 17-1 Connaugh Circus, Ne Delhi.

	reference temperature			
	Instrument runway, physical characteristics; length of primary / secondary runway	2	BB/Assignment	
	Width of runways	1	BB/PP	
	Minimum distance between parallel runways etc	1	Field visit to Airport	
	Obstacles restriction	1	BB/PP	
	Total Periods	9		
Module VI	VISUAL AIDS FOR NAVIGATION, VISUAL AIDS FOR DENOTING OBSTACLES EMERGENCY AND OTHER SEVICES			
	Visual aids for navigation wind direction indicator , landing direction indicator, Location and characteristics of signal area	1	BB/PP	"Aircraft Manua (India) Volume I latest Edition – The English Book Store,17-1 Connaught Circus, New Delhi.
	Markings, general requirements – various markings	1	BB/PP	
	Lights, general requirements	1	BB/Crafting of various ILS approaches	
	Aerodrome beacon, identification beacon	1	BB/PP	
	Simple approach lighting system and various lighting systems	1	BB/PP	
	VASI & PAPI	1	BB/Field visit to Airport	
	Visual aids for denoting obstacles; object to be marked and lighter	1	BB/PP	
	Emergency and other services	1		
	Total Periods	8		
	TOTAL PERIODS	45Hours		

Date: 07-01-2019

Course faculty

Head of the Department

B.S. Abdur Rahman Crescent Institute of Science & Technology
Deemed to be University u/s 3 of the UGC Act, 1956

LESSON PLAN

1. Course Title : Aircraft General Engineering & Maintenance Practice

5.Semester : VIII

2. Course Code : AEBX20

6.Academic Year : 2018 -19

3. Course Faculty : D.ROSHAN

7.Department : Aerospace

4. Theory/Practical: Theory

8.No of Credits : 3

Course Introduction:

This paper deals with aircraft, Engine starting procedures and special procedures such as Mooring, jacking, levelling and towing operations servicing of Air conditioning and pressurizationsystems. Shop safety and Environmental cleanliness FAA airworthiness regulations and check list involved ineach inspection of aircraft. aircraft hardware selection,identification of fluid line fittings.

9. Course Learning Objectives:

- To familiarize with ground handling of aircraft, Engine starting procedures and special procedures such as Mooring, jacking, levelling and towing operations.
- To familiarize with ground servicing of Air conditioning and pressurization systems.
- To familiarize with Shop safety and Environmental cleanliness.
- To familiarize with FAA airworthiness regulations and check list involved in each inspection of aircraft.
- To familiarize with terminology involved in aircraft hardware selection, identification of fluid line fittings.

10. Course pre-requisites:

Aircraft Systems Laboratory

11. Schedule of teaching and learning

S.No	Period	Topic	Mode of Delivery	Teaching Aids	Reference/ Source
[Refer Annexure]					

12. Course materials and References

Handouts will be distributed / posted in website as and when required. References and a course content copy is given in Annexure.

13. **Assessment scheme**: Test 30 marks + Assignment 20 Marks

i) Periodical test

There will be two periodical assessment tests and the test portions are given below

Assessment Scheme	CAT-1	CAT-2	End Semester
CAT	80%	80%	100%
Assignment	20%	20%	------

CAT I Module – I **AIRCRAFT GROUND HANDLING AND SUPPORT EQUIPMENT**
Module – II **GROUND SERVICING OF VARIOUS SUB SYSTEMS**
Module - III **MAINTENANCE OF SAFETY**

CAT II Module - IV **INSPECTION**
Module - V **AIRCRAFT HARDWARE ,MATERIALS, SYSTEM PROCESSES**
Module - VI **OTHER SPECIFICATIONS AND SERVICES**

ii) Individual Assignment

Type of assignment	-	Individual
No. of assignments to be given	-	2(one from each assessment test portion)
Submission date	-	One week before the CAT examinations
Marks allotted	-	20% marks for each assignment

14. Expected outcome of the course:

Students will be able to

- Understand the procedure of jacking, leveling and engine starting procedures
- Gain knowledge of the standard maintenance practices for aircraft systems.
- Understand the need for periodical maintenance to ensure flight safety
- Inspect the aircraft maintenance intervals, publications bulletins and air worthiness check
- Understand the operating tools and work on aircraft hardware
- Differentiate between different tools and their usage in Aircraft maintenance

15. Mapping of course outcomes with learning activities and assessments

Course outcomes	Learning activities	Assessments	CAT I * %	CAT II * %	End sem * %
Course outcome 1	Refer Annexure - Schedule of Teaching and Learning	Assessments are based on the performance in the respective continuous assessments and Project	30-40	-	10-20
Course outcome 2			30-40	-	10-20
Course outcome 3			20-30	30-40	10-20
Course outcome 4			-	30-40	10-20
Course outcome 5			-	20-30	10-20
Course outcome 6			-	-	10-20

Date: 19/01/2019

Head of Department

D. Roshan 19/1/19
Course Faculty

	of all types of fluid line fittings		
	Total Periods	6	
MODULE VI	American and British system of specifications	1	BB
	Threads, gears, bearings, etc Drills, tapes and reamers	1	BB
	Identification of all types of fluid line fittings. Materials, metallic and non-metallic	2	BB
	Plumbing connectors Cables Swaging procedures, tests, Advantages of swaging over splicing.	2	BB
	Total Periods	6	
	Total no. of hours	45	

AEBX20 **AIRCRAFT GENERAL ENGINEERING AND MAINTENANCE PRACTICES** **L T P C 3 0 0 3**

OBJECTIVE

To introduce the basic concepts of aircraft general engineering and maintenance practices.

MODULE I AIRCRAFT GROUND HANDLING AND SUPPORT EQUIPMENT 10

Mooring, jacking, leveling and towing operations – Preparation – Equipment – precautions – Engine starting procedures – Piston engine, turboprops and turbojets – Engine fire extinguishing – Ground power unit.

MODULE II GROUND SERVICING OF VARIOUS SUB SYSTEMS 8

Air conditioning and pressurization – Oxygen and oil systems – Ground. units and their maintenance.

MODULE III MAINTENANCE OF SAFETY 5

Shop safety – Environmental cleanliness – Precautions

MODULE IV INSPECTION 10

Process – Purpose – Types – Inspection intervals – Techniques – Checklist – Special inspection – Publications, bulletins, various manuals – FAR Air worthiness directives – Type certificate Data sheets – ATA Specifications

MODULE V AIRCRAFT HARDWARE ,MATERIALS, SYSTEM PROCESSES 6

Hand tools – Precision instruments – Special tools and equipments in an airplane maintenance shop – Identifiation terminology – Specification and correct use of various aircraft hardware (i.e. nuts, bolts, rivets, screws etc) – American and British systems of specifications – Threads, gears, bearings, etc – Drills, tapes and reamers – Identification of all types of fluid line fittings. Materials, metallic and non-metallic = Plumbing connectors – Cables – Swaging procedures, tests, Advantages of swaging over splicing.

MODULE VI OTHER SPECIFICATIONS AND SERVICES 6

American and British system of specifications – Threads, gears, bearings, etc – Drills, tapes and reamers–Identification of all types of fluid line fittings. Materials, metallic and non-metallic Plumbing connectors – Cables – Swaging procedures, tests, Advantages of swaging over splicing.

TOTAL: 45

TEXT BOOK

1. Kroes Watkins Delp, Aircraft Maintenance and Repair, McGraw Hill, New York, 1993.

REFERENCES:

1. A&P Mechanics, Aircraft Hand Book, FAA Himalayan Book House, New Delhi, 1996
2. A&P Mechanics, General Hand Book, FAA Himalayan Bok House, New Delhi, 1996

Date: 19/01/2019

Head of Department

19/1/2019

19/1/19

Course Faculty