DEPARTMENT OF AERONAUTICAL ENGINEERING

COURSE COVERAGE SUMMARY

FOR

(R18A2120) AIRCRAFT MAINTENANCE ENGINEERING

IV BTECH – II SEMESTER

(2022-2023)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Sponsored by CMR Educational Society)

(Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade – ISO 9001:2008 Certified)

Maisammaguda, Dhulapally (Post Via Hakimpet), Secunderabad – 500100

(R18A2120) AIRCRAFT MAINTENANCE ENGINEERING
COURSE COVERAGE SUMMARY

Unit	Title of the unit	Topics of the unit	Name of the Text Book	Chapter No.	Page No
I	NECESAITY & DEVELOPMENT OF MAINTENANCE PROGRAMS	**Definition of maintenance, role of the engineer, role of the mechanic, two types of maintenance, reliability, establishing a maintenance program. Goals and objectives of maintenance. Maintenance steering group(MSG) Approach, process – Oriented maintenance, task- oriented maintenance, current MSG process – MSG – 3, maintenance program documents**	Kinnison, H.A , Aviation Maintenance Manageent, Mc Graw – Hill – 2004	1, 2, 3	3-13 & 15-44
II	AVIATION CERTIFICATION REQUIREMENTS AND DOCUMENTATION FOR MAINTENANCE & ENGINEERING	**Aircraft certification, delivery inspection, operator certification, certification of personnel, aviation industry interaction; types of documentation. Manufacturer`s documentation, regulatory documentation. Airline generated documentation. ATA document standards. Objectives of a maintenance program, outline of aviation maintenance program, summary of FAA requirements, additional maintenance program requirements; organization of maintenance and engineering, organization structure, M&E organization chart, general groupings, managerial level functions- technical services, aircraft maintence, overhaul shops, material.**	Kinnison, H.A , Aviation Maintenance Manageent, Mc Graw – Hill – 2004	4, 5	45-56 & 57-74
III	TECHNICAL SERVICES	**Engineering: makeup of engineering, mechanics and engineers, engineering department functions, engineering order preparation; production planning & control – forecasting, production planning, production control , Organization of PP&C; technical publications- functions of technical publications, airline libraries, control of publications,; Technical Training-organization, training for aviation maintenance, airframe manufacturer`s training courses,**	Kinnison, H.A , Aviation Maintenance Manageent, Mc Graw – Hill – 2004	6,7,8	79-89 & 91-101,103-114
IV	MAINTENANCE AND MATERIAL SUPPORT	**Line maintenance(on – aircraft), functions that control maintenance, MCC responsibilities, general line maintenance operations, aircraft logbook, ramp and terminal operations, maintenance crew requirement, morning meeting; Hangar Maintenance (on-aircraft)- organization of hangar maintenance, problem areas in hangar maintenance, maintenance support shops, ground support equipment, typical C – check: Shop data collection; Material support –organization and function of material. Material directorate, M&E support functions**	Kinnison, H.A , Aviation Maintenance Manageent, Mc Graw – Hill – 2004	12,13,14	143-149 & 151-161 & 163-179

V	OVERSIGHT FUNCTIONS, ART & SCIENCE OF TROUBLE SHOOTING	**Quality Assurance , quality audits, ISO 9000 quality standard, technical records, Quality control-quality control organization, FAA and JAA QC inspector qualifications. Basic inspection policies,; Reliability – definition and types of reliability, elements of a reliability program, Maintenance safety – safety regulations, maintenance safety program, general safety rules, accident and injury reporting . Human factors in maintenance, Trouble shooting, knowledge of malfunctions, Basic concepts of trouble shooting.**	Kinnison, H.A , Aviation Maintenance Manageent, Mc Graw – Hill – 2004	16,17,18, 19	195-206 & 207-211 & 217-233 & 237-243

COURSE COVERAGE SUMMARY

FOR

IV B.TECH – II SEMESTER
(2022-2023)

HELICOPTER ENGINEERING

COURSE COVERAGE SUMMARY
HELICOPTER ENGINEERING (R18A2139)

Unit No. and Title	Topics of the Units	Text book	Chapter no. in Text book	Page numbers
1 Introduction	Historical Development of Helicopters, Helicopter Configuration, Control Requirements, Types of Rotor Systems, Basic Power Requirements.	Gessow A and Meyers G.C., Aerodynamics of Helicopter, Mcmillan & co., N.Y. 1987	1 and 2	1- 45
2 Introduction to hovering theory	Momentum Theory, Blade Element Theory, Combined Blade Element and Momentum theories for non-uniform inflow calculation, Ideal Rotor vs. Optimum Rotor.	Gessow A and Meyers G.C., Aerodynamics of Helicopter, Mcmillan & co., N.Y. 1987	3	146 - 165
3 Vertical flight	Various flow states of Rotor, Autorotation in Vertical Descent, Ground Flight.	Gessow A and Meyers G.C., Aerodynamics of Helicopter, Mcmillan & co., N.Y. 1987	6	117 - 137
4 Forward Flight	Momentum Theory, Variable Inflow Models, Blade Element Theory, Rotor Reference Planes, Hub Loads, Power variation with forward speed, Rotor Blade flapping Motion: Simple Model.	Johnson W Helicopter theory, Princeton University pres 1980	4 and 5	125 - 266

5 Helicopter trim and stability	Equilibrium condition of helicopter, Trim analysis, Basics of helicopter stability.	Gessow A and Meyers G.C., Aerodynamics of Helicopter, Mcmillan & co., N.Y. 1987	11	269 - 306

COURSE COVERAGE SUMMARY

FOR

IV B.TECH – II SEMESTER

(2022-2023)

AIRLINE AND AIRPORT MANAGEMENT

IV Year B. Tech, ANE – II Sem

(R187A2142) AIRLINE AND AIRPORT MANAGEMENTCOURSE COVERAGE (PROFESSIONAL ELECTIVE – V)

TITLE OF THE UNIT	TOPICS OF THE UNIT	NAME OF THE TEXT BOOK	CHAPTER No.	PAGE No.
UNIT-I **AIRPORTS AND AIRPORT SYSTEMS**	Introduction-Airport Management on an international level- Rules that govern airport management-Organization and administration Airport ownership and organization , responsibilities of Airportmanager .Components of an airport-The airfield-Navigationaids(NAVAIDS)located on airfields-Air traffic Control and surveillance facilities located on the airfield.	AIRPORT PLANING AND MANAGEMENT BY ALEXANDER T.WELLS Ed.D& SETH YOUNG Ph.D	I II III	1 TO 27 28 TO 52 53 TO 96
UNIT–II **AIRPORT OPERATIONS MANAGEMENT**	Airspace and air traffic management, Airport operationsmanagement under FAR Part 139, Airport terminals and ground access, Airport security and Administration -Security at commercial service airports-Security at general aviation airports.	AIRPORT PLANING AND MANAGEMENT BY ALEXANDER T.WELLS Ed.D& SETH YOUNG Ph.D	IV V VI	99 TO 151 152 TO 192 193 TO 248
UNIT-III **AIRPORT ADMINISTRATION AND FINANCIAL MANAGEMENT ,CAPACITY AND DELAY**	concept of Airport planning and financialaccounting-Revenue strategies at commercialairports-Pricingof airport facilities and services, , The future of airport management.Definingcapacity-Factors affecting capacity anddelay-estimating capacity-Simulation Models-Defining delay-Estimating delay-Analytical estimates of delay.	AIRPORT PLANING AND MANAGEMENT BY ALEXANDER T.WELLS Ed.D& SETH YOUNG Ph.D	XI XII XIII	365 TO 412 413 TO 452 461 TO 468

UNIT-IV **INTRODUCTION TO AIRLINE PLANNING**	Structure of Airline Industry (Domestic &International)-Growthand Regulation-Deregulation-Major and NationalCarriers-Regional Carriers-Economic characteristics ofthe Airlines Airline Planning Process-Airline Terminology and Measures: airline demand, airline supply,average load factor, unit revenue, Airline Planning Decisions	AIR TRANSPORTATION A MANAGEMENT PERSPECTIVE BY JOHN G. WENSVEEN	V VI	147 TO 165 175 TO 191
UNIT-V **FLEET PLANNING AND ROUTE EVALUATION**	Factors in Fleet Planning-Hub-and-Spoke System-TechnicalAspects-Fleet Rationalization-Fleet Commonality-Long Range Aircraft-Noise Restrictions-Factors inDesign and Development-Fleet Planning Process; Route Evaluation in HubNetworks-Route profitabilityestimation issues-Demand Driven Dispatch.	AIR TRANSPORTATION A MANAGEMENT PERSPECTIVE BY JOHN G. WENSVEEN	XII XIII	343 TO 369 373 TO 396