HANDONG UNITWIN FELLOWSHIP

SYLLABUS

Lecturer's Information	
Name	Manchan Tiwari
University	Tribhuvan University

Course Information			
Course Name	Building Services III	Prerequisite Course	
Course Date	2023-10-01 ~ 2023-12-31	Course Language	English
Keyword	Building Services, Lift, Air Conditioning, Central AC, Ventilation		

Course Description (100 ~200 words)	The course is taught to Bachelor of Architecture students studying in 4th year of their undergraduate studies. As the students do not have basics of mechanical engineering, the course is mainly focused on familiarizing students with the concepts of mechanical systems and equipment which are used in building. The course is the only of its kind for the students of architecture as they do not have any other course which provides basic informations of concepts of mechanical engineering which is must to understand the basic of natural air flow, natural ventilation and air conditioning.
Course Goals and Objectives (Approximately 100 words)	The course objectives are: - to familiarize students with basic concept of air conditioning, thermodynamics, heat transfer and science of natural air flow - to impart knowledge about basics of energy technologies used in buildings - to impart knowledge about components of fire fighting systems, mechanical equipments used in construction
Textbook	**(The format : Title, Author/Editor, Publisher, Year of Publication)** "Building Services Engineering", David V. Chadderton, 1995
References	"Refrigeration and Air Conditioning", RS Khurmi, 2011 "Air Conditioning and System", Edward G. Pita, 2002
Course Requirements and Grades	

Weekly Schedule		
Week	Main Topics	Keywords
1	Thermal Comfort, Basics of HVAC	Air Cooling, AC
2	Psychometric Chart, Ventilation Standard	Psychometry
3	HVAC Design, Components and Types of HVAC System	Windows AC, Split AC
4	Heating Systems, Central AC Systems	Central AC
5	Cooling Load and Calculations	Cooling Load, Heating Load
6	Indoor Air Quality, Natural Ventilation	Stack Effect, Air movement
7	Types of fire and safety codes, wet/dry pipe system, hydrant and sprinklers system	Fire Safety, Hydrant System
8	Lifts and Escalators, Construction equipment	Vertical Transport
9	Energy, Energy Planning and Auditing	Renewable Energy, Building Energy, Energy Audit
10	Solar PV Systems, Solar Heating Systems	Solar PV, Buildings Solar
11	Case Study 1 (Natural Ventilation, HVAC Systems)	Air Conditioning
12	Case Study 2 (Renewable Energy Technology incorporated in Building)	Renewable energy in buildings
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