# COURSE OUTLINE

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| **Department & Faculty:**<br>**Dept. of Built Environment**<br>**Center For Diploma Studies SPACE** | **Page : 1 of 6** |
| **Course Code : Building Services (DDPF 1523)**<br>**Total Contact Hours : 56 hours** | **Semester: II**<br>**Academic Session: 2012/2013** |

**Lecturer** :

**Room No.** :

**Telephone No.** :

**E-mail** :

**Synopsis** : This course introduces students to some major views and theories in environment of building services in Malaysia based on the Uniform Building Act 1984. It will emphasize on the general concepts of introduction to the building services, the water supply system, electricity supply system, drainage system, air system etc. At the end of this courses, students should be able to appreciate the building services environment in Malaysia, increase their awareness on the roles of building development based on Uniform Building Act 1984, comprehend the concepts and practical aspects of building services. Besides that, students should also be able to work in a team.



**LEARNING OUTCOMES**

By the end of the course, students should be able to:

| No. | Course Learning Outcome | Programme Learning Outcome(s) Addressed | Taxonomy/ KI Levels | Assessment Methods |
|---|---|---|---|---|
| 1. | Define, describe and apply several types of building services and various rules, regulations and associated by-laws | PO1 | C3 | Test and Final Exam |
| 2. | Identify and explore problems in relation to practices of building services | PO3 | P3<br>CTPS1 | Project |
| 3. | Relate theories , practices and accept new ideas in relation to building services in Real Estate | PO6 | A3<br>LL1-LL2 | Project |

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**STUDENT LEARNING TIME**

| Teaching and Learning Activities | Student Learning Time (hours) |
|---|---|
| **A. Face-to-face Learning** | |
| 1. Lecture | 28 |
| 2. Tutorial | 14 |
| 3. Student Centered Learning | 14 |
| **B. Self Directed Learning** | |
| 1. Non face-to-face : project | 41.5 |
| 2. Revision | 10 |
| 3. Assessment Preparation | 7.5 |
| **C. Formal Assessment** | |
| 1. Continuous Assessment : test | 2.5 |
| 2. Final Exam | 2.5 |
| **Total** | **120** |

**TEACHING METHODOLOGY**

Lecture and Discussion, Co-operative Learning, Independent Study, Group Assignment

**WEEKLY SCHEDULE**

**Week 1** : **1.INTRODUCTION TO BUILDING SERVICES**

1.1 Definition of building

1.2 Types of building.

1.3 Functions of building.

1.4 Types of building services.

1.5 The various rules, regulations, and by laws associated with the construction.

**Week 2** : **2.0 WATER SUPPLY SYSTEM**

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**Project (10%)**

2.1 Introduction for water supply system.

2.2 The several of rules, regulations and by-laws associated with water supply system especially JBA.

2.3 Several resources of water supply.

2.4 Processing

2.5 Water's tank.

2.6 Types of water supply system for housing.

2.7 Types of water supply system for higher building.

Submit on week 7

**Weeks 3** : **2.0 WATER SUPPLY SYSTEM**

2.1 Introduction for water supply system.

2.2 The several of rules, regulations and by-laws associated with water supply system especially JBA.

2.3 Several resources of water supply.

2.4Processing

2.5 Water's tank.

2.6Types of water supply system for housing.

2.7Types of water supply system for higher building.

**Weeks 4** : **3. ELETRIC SUPPLY SYSTEM**

3.1 Introduction for electric supply system. The several of rules, regulations and by-laws associated with water supply system especially TNB.

3.2 Types of electric supply system.

3.3 Wiring system and Accessories

**Weeks 5** : **3. ELETRIC SUPPLY SYSTEM**

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| | |
|---|---|
| | 3.1Introduction for electric supply system. The several of rules, regulations and by-laws associated with water supply system especially TNB.<br>3.2 Types of electric supply system.<br>3.3 Wiring system and Accessories |
| **Weeks 6**<br>**Test 1 (15%)** | **4. DRAINAGE SEWERAGE DISPOSAL SYSTEM**<br>4.1 Introduction for drainage and sewerage disposal system.<br>4.2 The several of rules, regulations and by-laws associated for drainage and sewerage disposal system especially Indah Water Consortium.<br>4.3 Principle of drainage and sewerage disposal system.<br>4.4 Sewerage disposal system: septic tank, imhoff tank, mechanical system: component equipment and method of construction. |
| **Week 7**<br><br>**Submit Project** | **4. DRAINAGE SEWERAGE DISPOSAL SYSTEM**<br>4.1 Introduction for drainage and sewerage disposal system.<br>4.2 The several of rules, regulations and by-laws associated for drainage and sewerage disposal system especially Indah Water Consortium.<br>4.3 Principle of drainage and sewerage disposal system.<br>4.4 Sewerage disposal system: septic tank, imhoff tank, mechanical system: component equipment and method of construction.<br>4.5 Drainage system: one pipe, two pipe , combined 2.5 Steel frame construction |
| **Weeks 8** | **MID TERM BREAK** |
| **Weeks 9**<br><br>**Presentation** | **5. VENTILATION SYSTEM**<br>5.1 Introduction for ventilation system.<br>5.2 The several of rules, regulations and by-laws associated for ventilation system. |

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5.3 Requirement and importance

5.4 Types of ventilation system.

**Week 10 Presentation** :

**6. AIR CONDITIONING SYSTEM**

6.1 Introduction for air conditioning system.

6.2 The several of rules, regulations and by-laws associated for ventilation system.

6.3 Requirement and importance

6.4 Processing of air conditioning.

6.5 Types of air conditioning system

**Weeks 11 Presentation** :

**6.0 AIR CONDITIONING SYSTEM**

6.1 Introduction for air conditioning system.

6.2 The several of rules, regulations and by-laws associated for ventilation system.

6.3 Requirement and importance

6.4 Processing of air conditioning.

6.5 Types of air conditioning system



**Weeks 12 Presentation** :

**7. MECHANICAL HANDLING SYSTEM**

7.1 Introduction of mechanical handling system (MHS) in building.

7.2 Lift system: planning, lift capacity, components, types and equipments.

7.3 Escalators: planning, escalator capacity, component, types and equipment.

7.4 Introduction to travellator and others latest mechanical handling system.

**Weeks 13 Presentation** :

**7. MECHANICAL HANDLING SYSTEM**

7.1 Introduction of mechanical handling system (MHS) in building.

**Test 2 (15%)**

7.2 Lift system: planning, lift capacity, components, types and equipments.

7.3 Escalators: planning, escalator capacity, component, types and equipment.

7.4 Introduction to travellator and others latest mechanical handling system.

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**Weeks 14** : **8. LIGHTNING PROTECTION SYSTEM**

**Presentation**

8.1 Theory of lightning, method of lightning protection and the effects of lightning strikes on building.

8.2 The components, fittings and accessories associated with lightning protection system and the methods of installation.

**Weeks 15** : **8. LIGHTNING PROTECTION SYSTEM**
**Presentation**

8.1 Theory of lightning, method of lightning protection and the effects of lightning strikes on building.

8.2 The components, fittings and accessories associated with lightning protection system and the methods of installation.

**REFERENCES** :


1. Fred Hall and Roger Greeno (2009). "Building Services Handbook, Fifth Edition: Incorporating Current Building & Construction Regulation". Elsevie Limited.
2. Micheal Frankel (2009). "Piping Facilitiey System Handbook: For Industrial, Commercial and Healthcare Facilities". Mc Graw Hill
3. Richard R. Janis and William K.Y.Toa (2008). "Mechanical and Eletrical System In Building"Mc Graw Hill.


**GRADING**

| No. | Assessment | Number | % Each | BT | % Total |
|---|---|---|---|---|---|
| 1 | Project | 1 | 20% | P1<br>CTPS1<br>A1-A2<br>LL1,LL2 | 20% |
| 2 | Tests | 2 | 10% | C1 – C3 | 20% |
| 3 | Final Exam | 1 | 60% | C1 – C3 | 60% |
| | **Overall Total** | | | | **100** |