Course Specifications of:

**Design and Analysis of Engineering Systems**

Program(s) on which the course is given :Preparatory Courses - Architecture Design

Compulsory or Elective element of program: Compulsory

Department offering the program: Architecture

Academic year / Level: year/ 2014-2015

Date of specification approval:June 2012

1. Basic Information
2. Title:Design and Analysis of Engineering Systems Code: Eng 504
3. Credit Hours:3 Lecture:3 practical
4. Semester work:100 Final Exam:200 Practical: Total:300
5. Professional Information

1- Overall aims of course:

By the end of the course the student will be able to

* Analyze management structuresystems.
* Analyze tools, flow of data diagrams.
* Evaluate problem identifications and its units.
* Evaluate resources data.
* Learn how to deal with the physical components of the system design, system software.

2- Intended learning outcomes of course (ILOs):

1. **Knowledge and understanding**

2.1.1 Identify theories, fundamentals and specialized knowledge in management structure systems as well as in related disciplines

2.1.6 Define the basics and the ethics of scientific research.

1. **Intellectual skills**

2.2.1 Analyze and assess information in the field of management and resources and draw analogies to solve problems.

 2.2.2 Link different knowledge sources to solve problems

1. **Professional and practical skills**
   * 1. Write and evaluate professional re

2.3.3 Assess methods and current tools in the area of systems design.

2.3.4 acquire and apply the range of skills necessary to become professional management systems.

1. **General and transferable skills**

2.4.1 Communicate effectively using different means.

2.4.5 Set basis and standards to assess the performance of others.

2.4.6 Work in a group and Lead a team in familiar professional contexts

3- Contents

|  |  |  |  |
| --- | --- | --- | --- |
| Topic No. | Topic | No. of weeks | Total no. of hours |
| 1 | Definition of the system | 1 | 3 |
| 2 | User profiles and different types of user |  | 3 |
| 3 | System analyzer and system management. | 1 | 3 |
| 4 | Flow of data diagrams | 1 | 3 |
| 5 | The life cycle of the system | 1 | 3 |
| 6 | Problem identification and its units and the feasibility study | 1 | 3 |
| 7 | Sources and data stores in the construction plan& Quizzes | 1 | 3 |
| 8 | Generating of alternatives and design methods | 1 | 3 |
| 9 | Generating of alternatives and design methods and Assignment 1 | 1 | 3 |
| 10 | The physical components of the system design | 1 | 3 |
| 11 | System softwareandthe list of the components of the system and Assignment 2 | 1 | 3 |
| 12 | Application on projects managements | 1 | 3 |
| 13 | Determination of the logic of the processesanddetailed | 1 | 3 |
| 14 | Design of control software in the system and Determination of the test Plan, implementation and maintenance | 1 | 3 |
| 15 | Presentations | 1 | 3 |
| 16 | Final exam | 1 | 3 |
| TOTAL | | 16 | 45 |

4- Course Matrix

|  |  |  |
| --- | --- | --- |
| ILO’s code number | Teaching/learning methods and strategies | Assessment methods and strategies |
| 2.1.1 – 2.1.6 | Acquisition of core knowledge and understanding is achieved mainly through lectures, seminars, tutorials, directed reading, project work and independent study. | Assessment will be through individual coursework assignments, quizzes, oral discussions and reports. In addition final written examinations are given. The grades distribution system is shown in the curriculum table below. |
| 2.2.1 – 2.2.2 | Analysis and problemsolving skills are developed through tutorial/problem sheets and small group exercises.  Research skills are developed through the research project in the course of dissertation or thesis preparation. | Analysis and problem‐solving skills are assessed through oral and written examinations.  Design and research skills are assessed through project write-ups, coursework and project reports, presentations and the final |
| 2.3.2 – 2.3.3 – 2.3.4 | Projects demonstrations, practical work, projects | Practical skills are assessed through projects write-ups, coursework exercises and reports, project reports and presentations and finally on the methodology demonstrated in the work for the dissertation or thesis. |
| 2.4.1 – 2.4.5 – 2.4.6 | Presentations in annual seminars (compulsory to be attended by a panel of departmental staff and other students).  Attendance of workshops or conferences or internal seminars. |  |

5-Assessment schedule

Assessment 1 Assignmentson weeks 9-11

Assessment 2 Quizzes on weeks 7

Assessment 3 Presentations on week 15

Assessment 4 Final exam on week 16

6- Weighting of assessments

15% Home assignments

03% Quizzes

15% Presentations

67% Final-term examination

100% Total

7- List of References

6.1 Essential books.

* JL Whitten, VM Barlow, L Bentley .systems analysis and design methods‏,McGraw-Hill Professional. 1997.
* R Jain. The art of computer systems performance analysis‏, cmg ,1991.
* [Kent, Sherman](http://en.wikipedia.org/wiki/Sherman_Kent) (2000). Strategic Intelligence for American World Policy.
* Anderson, Chris. [How to Build Effective Management Systems](http://www.bizmanualz.com/information/2005/01/26/how-to-build-effective-management-systems.html), Bizmanualz, January 26, 2005.

8- Facilities required for teaching and learning

Lecture room equipped with overhead projector

Presentation board, computer and data show

9- Intended learning outcomes of course (ILOs) Matrixes

**9.1 Matrix 01: Course contents &Assignment& ILO's**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No. of weeks** | **Course Content** | **Total no. of hours** | **a. Knowledge and understanding** | | **b. Intellectual Skills** | | **c. Professional Skills** | | | **d. General Skills** | | |
| 2.1.1 | 2.1.6 | 2.2.1 | 2.2.2 | 2.3.2 | 2.3.3 | 2.3.4 | 2.4.1 | 2.4.5 | 2.4.6 |
| 1 | Definition of the system | 3 |  |  |  |  |  |  |  |  |  |  |
| 2 | User profiles and different types of user | 3 |  |  |  |  |  |  |  |  |  |  |
| 3 | System analyzer and system management. | 3 |  |  |  |  |  |  |  |  |  |  |
| 4 | Flow of data diagrams | 3 |  |  |  |  |  |  |  |  |  |  |
| 5 | The life cycle of the system | 3 |  |  |  |  |  |  |  |  |  |  |
| 6 | Problem identification and its units and the feasibility study | 3 |  |  |  |  |  |  |  |  |  |  |
| 7 | Sources and data stores in the construction plan& Quizzes | 3 |  |  |  |  |  |  |  |  |  |  |
| 8 | Generating of alternatives and design methods | 3 |  |  |  |  |  |  |  |  |  |  |
| 9 | Generating of alternatives and design methods and Assignment 1 | 3 |  |  |  |  |  |  |  |  |  |  |
| 10 | The physical components of the system design | 3 |  |  |  |  |  |  |  |  |  |  |
| 11 | System softwareandthe list of the components of the system and Assignment2 | 3 |  |  |  |  |  |  |  |  |  |  |
| 12 | Application on projects managements | 3 |  |  |  |  |  |  |  |  |  |  |
| 13 | Determination of the logic of the processesanddetailed | 3 |  |  |  |  |  |  |  |  |  |  |
| 14 | Design of control software in the system and Determination of the test Plan, implementation and maintenance | 3 |  |  |  |  |  |  |  |  |  |  |
| 15 | Presentations | 3 |  |  |  |  |  |  |  |  |  |  |
| 16 | Final exam | 3 |  |  |  |  |  |  |  |  |  |  |

**9.2 Matrix 02: Aims & ILO's**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Aims**  **ILO's** | **1** | **2** | **3** | **4** | **5** |
| 2.1.1 |  |  |  |  |  |
| 2.1.6 |  |  |  |  |  |
| 2.2.1 |  |  |  |  |  |
| 2.2.2 |  |  |  |  |  |
| 2.3.2 |  |  |  |  |  |
| 2.3.3 |  |  |  |  |  |
| 2.3.4 |  |  |  |  |  |
| 2.4.1 |  |  |  |  |  |
| 2.4.5 |  |  |  |  |  |
| 2.4.6 |  |  |  |  |  |

Course coordinator:**Associate professor dr./** Azzat Said

Course instructor: **Associate professor dr./**Azzat Said

Date 20 / 10 /2014