Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department: CS & IT
Stage: 4
Instructor name: Dr. Foad Salem
Academic status: Lecturer
Qualification: PhD
Place of work: Karkuk

# Course Weekly Outline

## Course Name : Artificial Intelligent(second course)

| | | | | | |
|---|---|---|---|---|---|
| **Course Instructor** | Dr. Foad Salem Mubarek | | | | |
| **E-mail** | Fualku1968@yahoo.com | | | | |
| **Title** | Artificial Intelligent | | | | |
| **Course Coordinator** | Dr. Foad Salem Mubarek | | | | |
| **Course Objective** | Teaching students working with the AI problems and learn them select the suitable algorithm for each problem | | | | |
| **Course Description** | This course involved different type of algorithm begging with blinded and move to heuristic algorithm. Then moving to logic and cover all titled belong to logic | | | | |
| **Textbook** | Artificial intelligence: a modern approach, Russell and Norvig, 2nd Edition, Prentice Hall, 2003. | | | | |
| **References** | Artificial intelligence, Luger, 5th ed. Addison-Wesley, 2005 | | | | |
| **Course Assessments** | TermTests | Laboratory | Quizzes | Project | Final Exam |
| | 25% | 15% | 5% | 5% | 50% |
| **General Notes** | | | | | |

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department:
Stage: fourth
Instructor name:Dr Foad Salem
Academic status: Lecturer
Qualification: Ph D
Place of work: Karkuk

| Week | Date | Topics Covered | Lab. Experiment Assignments | Notes |
|---|---|---|---|---|
| 1 | | Admissibility of heuristic | Prolog Prog.1 | |
| 2 | | Heuristic game algorithm | Prolog Prog.2 | |
| 3 | | MinMax Algorithm | Prolog Prog.3 | |
| 4 | | Application on MinMax algorithm | Prolog Prog.4 | |
| 5 | | Introduction To Logic | Prolog Prog.5 | |
| 6 | | Propositional Logic | Prolog Prog.6 | |
| 7 | | Example and tutorial in propositional logic | Prolog Prog7 | |
| 8 | | First Order Logic | Prolog Prog8 | |
| 9 | | Example and tutorial in first order logic | Prolog Prog9 | |
| 10 | | Inference in First order Logic | Prolog Prog10 | |
| 11 | | Inference rules (universal,existential,modes ponens) | Prolog Prog11 | |
| 12 | | Forward chaining | PrologProg12 | |
| 13 | | Backward Chining | Prolog Prog13 | |
| 14 | | Resolution method | Prolog Prog14 | |
| 15 | | Exam | Exam | |

**Course Weekly Outline**

**Instructor Signature:** **Dean Signature:**

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department: Computer Science + Information Technology
Stage: 4th Year
Instructor name: Dr. Belal Al-Khateeb
Academic status: Asst. Prof.
Qualification: PhD
Place of work: University of Anbar

# Course Weekly Outline

## Course Name: Artificial Intelligence I

| | | | | | |
|---|---|---|---|---|---|
| **Course Instructor** | Dr. Belal Al-Khateeb | | | | |
| **E-mail** | belal@computer-college.org | | | | |
| **Title** | Asst. Prof. | | | | |
| **Course Coordinator** | Dr. Belal Al-Khateeb | | | | |
| **Course Objective** | 1- Understanding of AI definitions, characteristics and types.<br>2- Distinguishing between AI search techniques.<br>3- Designing smart systems for solving daily life problems. | | | | |
| **Course Description** | This course aims to make students know about AI and how to solve problems by using blind search techniques and resolution methods. | | | | |
| **Textbook** | Artificial Intelligence: A Modern Approach, Stuart Russell and Peter Norvig, Pearson Education 2010. | | | | |
| **References** | Artificial Intelligence: Structures and Strategies for Complex Problem Solving, George F. Luger, Addison-Wesley, 2008 | | | | |
| **Course Assessments** | Term Tests | Laboratory | Quizzes | Project | Final Exam |
| | 25% | 15% | 10% | 5% | 50% |
| **General Notes** | | | | | |

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
University: Anbar
College: CS & IT
Department: Computer Science + Information Technology
Stage: 4th Year
Instructor name: Dr. Belal Al-Khateeb
Academic status: Asst. Prof.
Qualification: PhD
Place of work: University of Anbar

# Course Weekly Outline

| Week | Date | Topics Covered | Lab. Experiment Assignments | Notes |
|---|---|---|---|---|
| 1 | | Heuristic Search: Heuristic Functions. | | |
| 2 | | Hill Climbing Algorithm. | | |
| 3 | | Best-First Search Algorithm. | | |
| 4 | | Cost Functions. | | |
| 5 | | A* Algorithm. | | |
| 6 | | Properties of Heuristic Functions. | | |
| 7 | | Search in Games: Introduction. | | |
| 8 | | Min-Max Algorithm. | | |
| 9 | | Mid Term Exam | | |
| 10 | | Alpha-Beta Search Procedure; Enhancement to Game Search. | | |
| 11 | | Expert Systems: Structure; Rule Based Expert Systems. | | |
| 12 | | Control Strategies in Rule Based Production Systems: Backward Chaining and its Implementation. | | |
| 13 | | Pure Forward Chaining and its Implementation; Rule-Cycle Hybrid Control Strategy and its Implementation. | | |
| 14 | | Uncertaininty in Expert Systems: Representing Probabilities in Rules; Combining Evidence. | | |
| 15 | | Other Approaches to Expert System Design: Decision Lattices; And-Or-Not Lattices. | | |

**Instructor Signature:** **Dean Signature:**

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department: CS and IS Departments
Stage: 4th
Instructor name: Sufyan T. F. Al-Janabi
Academic status: Professor
Qualification: Ph.D.
Place of work: College of CS & IT

# Course Weekly Outline

## Course Name: Information Security II

| | | | | | |
|---|---|---|---|---|---|
| **Course Instructor** | Dr. Sufyan Taih Faraj Al-Janabi | | | | |
| **E-mail** | sufyantaih@gmail.com | | | | |
| **Title** | Professor | | | | |
| **Course Coordinator** | Dr. Sufyan Taih Faraj Al-Janabi | | | | |
| **Course Objective** | To make students familiar with the basic concepts and applications of public key cryptography and hash functions. | | | | |
| **Course Description** | In the second semester, our focus will mainly be directed to public key cryptography. We will cover topics like hash functions, digital signatures, asymmetric encryption, RSA, public-key infrastructure, key distribution, and various applications. Indeed, we will cover topics like viruses, worms, and operating systems security. | | | | |
| **Textbook** | William Stallings, *Cryptography and Network Security: Principles and Practice*, 6/E, Pearson Education, Inc., 2014. | | | | |
| **References** | Charles P. Pfleeger and Shari Lawrence Pfleeger, *Security in Computing*, John Wiley & Sons, Inc., 2007.<br><br>Mark Stamp, *Information Security Principles and Practice*, John Wiley & Sons, 2006. | | | | |
| **Course Assessments** | Term Tests | Laboratory | Quizzes | Project | Final Exam |
| | 30% | | 10% | 10% | 50% |
| **General Notes** | | | | | |

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department: CS and IS Departments
Stage: 4th
Instructor name: Sufyan T. F. Al-Janabi
Academic status: Professor
Qualification: Ph.D.
Place of work: College of CS & IT

# Course Weekly Outline

| Week | Date | Topics Covered | Lab. Experiment Assignments | Notes |
|---|---|---|---|---|
| 1 | 20/2/2016 | Issues for Symmetric Key Cryptography:<br>Key Distribution | | |
| 2 | 27/2/2016 | Random Number Generation | | |
| 3 | 5/3/2016 | Prime Numbers<br>Primality Tests | | |
| 4 | 12/3/2016 | Public-Key Cryptography I: General Concepts | | |
| 5 | 19/3/2016 | RSA System<br>RSA Security | | |
| 6 | 26/3/2016 | Public-Key Cryptography II:<br>Exchanging Secret Session Keys | | |
| 7 | 2/4/2016 | Diffie-Hellman System | | |
| 8 | 9/4/2016 | Public-Key Cryptography III:<br>Constructing Digital Signatures | | |
| 9 | 16/4/2016 | El-Gamal System | | |
| 10 | 23/4/2016 | Hashing for Message Authentication<br>Cryptographic Hash Functions | | |
| 11 | 30/4/2016 | MACs Schemes | | |
| 12 | 7/5/2016 | Malware: Viruses | | |
| 13 | 14/5/2016 | Worms | | |
| 14 | 21/5/2016 | Trusted Systems | | |
| 15 | 28/5/2016 | Mounting Targeted Attacks with<br>Trojans and Social Engineering | | |

**Instructor Signature:** **Dean Signature:**

# Information Security I

## 4th Year Undergraduate Level Course- The First Semester

## College of CS and IT – University of Anbar

**Instructor:**

**Prof. Dr. Sufyan T. Faraj Al-Janabi**

**Lecture Time:**

- Saturday: 11:00 am - 2:00 pm (3 hours)

**Course Description:**

This is an introductory undergraduate course on cryptography and data security. It delivered for 4th year students in both computer science and information systems departments. Cryptography, broadly speaking, is about communicating in the presence of an adversary, with goals like preservation of privacy and integrity of communicated data. In the first semester, we will focus on classical and symmetric key cryptography, including block ciphers and their modes of operation. The course will emphasize rigorous mathematical formulations of security goals and aim to train students in spotting weaknesses in designs. This is generally regarded by undergraduates as a challenging course. It is mainly theoretical and mathematical in nature, and calls for ability to understand abstract concepts. Students would be asked to do assignments, solve home works, and implement programming projects in order to develop their skills.

**Aim:**

- To explore the concepts of information security attacks, services, and mechanism.
- To make students familiar with the basic concepts of applied cryptography, including classical cryptography and modern secret key cryptography.
- To explain the mathematical foundation of modern cryptography, especially number theory and finite fields.
- To highlight the practical applications and modes of operation of block ciphers.

**Learning Outcomes:**

After completing the module, the student should be able to:

- Describe the basic mathematical and technical issues relating to information security.
- Interpret how technology affects the design of symmetrical systems, especially block ciphers.
- Use rigorous mathematical formulations of symmetric cryptography to spot weaknesses in designs.
- Demonstrate skills in using classical ciphers for encryption and decryption.
- Demonstrate skills in using some basic cryptanalysis techniques related to classical cryptography.

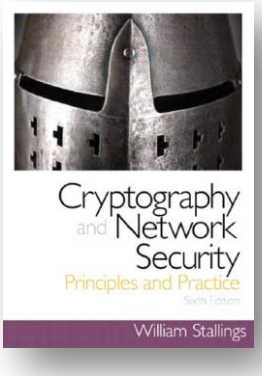
**Syllabus:**

| | | |
|---|---|---|
| 1. | Introduction<br>Historical Notes | 3 hours |
| 2. | Classical Encryption Techniques<br>Substitution Ciphers<br>Transposition Ciphers<br>Encryption Machines | 6 hours |
| 3. | Block Ciphers<br>The Data Encryption Standard<br>DES Cryptanalysis | 6 hours |
| 4. | Groups, Rings, and Fields | 6 hours |
| 5. | Modular Arithmetic | 6 hours |
| 6. | Polynomial Arithmetic | 6 hours |
| 7. | Finite Fields of the Form $GF(2^n)$ | 6 hours |
| 8. | AES: The Advanced Encryption Standard<br>AES Strength | 3 hours |
| 9. | Using Block and Stream Ciphers<br>Modes of Operation | 3 hours |

**Textbook:**

*Cryptography and Network Security: Principles and Practice*, 6/E
by William Stallings

Publisher: Pearson Education, Inc.
Copyright: 2014




**Assignments and home works:**

Assignments and home works will be distributed during the course. Unless otherwise is stated, all home works should be performed individually by students. The default time for submitting any home work is one week (they should be submitted before the beginning of the next lecture). All assignments and home works have to be submitted in a printed well-organized form.

**Programming Projects:**

Programming projects are assumed to be implemented in C/C++ or Java. Both of a printed documents and CD need to be submitted. Usually these can be done based on student groups to be formed during the course.

**Acknowledgements:**

- These lecture notes are mainly based on those prepared by Prof. Avinash Kak (kak@purdue.edu), Purdue University. Our sincere thanks are devoted to him.

- Thanks are also devoted to William Stallings, Bryan J. Higgs, Simon Singh, and Mostafa H. Dahshan for offering good basic materials over the net.

# Information Security II

## 4th Year Undergraduate Level Course- The Second Semester

## College of CS and IT – University of Anbar

**Instructor:**

### Prof. Dr. Sufyan T. Faraj Al-Janabi

**Lecture Time:** Saturday: 11:00 am - 2:00 pm (3 hours)

**Course Description:**

This is an introductory undergraduate course on cryptography and data security. It delivered for 4th year students in both computer science and information systems departments. Cryptography, broadly speaking, is about communicating in the presence of an adversary, with goals like preservation of privacy and integrity of communicated data. In the second semester, our focus will mainly be directed to public key cryptography. We will cover topics like hash functions, digital signatures, asymmetric encryption, RSA, public-key infrastructure, key distribution, and various applications. The course aim to train students in spotting weaknesses in designs. Indeed, we will cover topics like viruses, worms, and operating systems security. This is generally regarded by undergraduates as a challenging course. It is mainly theoretical and mathematical in nature, and calls for ability to understand abstract concepts. Students would be asked to do assignments, solve home works, and implement programming projects in order to develop their skills.

**Aim:**

- To explore the concepts of cryptographic key distribution and the limitation of symmetrical systems in this area.
- To make students familiar with the basic concepts of public key cryptography and hash functions.
- To explain the basic applications of public key systems in key distribution and digital signatures.
- To highlight the technical and social issues related to viruses, worms, and trusted systems.

**Learning Outcomes:**

After completing the module, the student should be able to:

- Understand and discuss the mathematical background behind the evolution of public key cryptography.
- Interpret how technology and theoretical advances can threat existing public key systems.
- Demonstrate skills in using some public key algorithms for various applications.
- Demonstrate skills in applying cryptographic hash functions for message authentication.
- Describe the social and ethical issues relating to viruses and other malicious codes.

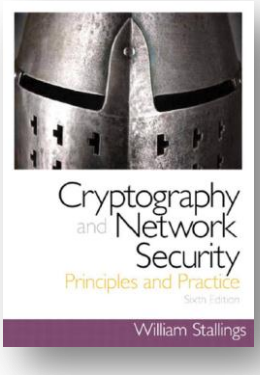
**Syllabus:**

| | | |
|---|---|---|
| 1. | Issues for Symmetric Key Cryptography:<br>Key Distribution<br>Random Number Generation | 6 hours |
| 2. | Prime Numbers<br>Primality Tests | 3 hours |
| 3. | Public-Key Cryptography I:<br>General Concepts<br>RSA System<br>RSA Security | 6 hours |
| 4. | Public-Key Cryptography II:<br>Exchanging Secret Session Keys<br>Diffie-Hellman System | 6 hours |
| 5. | Public-Key Cryptography III:<br>Constructing Digital Signatures<br>El-Gamal System | 6 hours |
| 6. | Hashing for Message Authentication<br>Cryptographic Hash Functions<br>MACs Schemes | 6 hours |
| 7. | Malware:<br>Viruses<br>Worms | 6 hours |
| 8. | Trusted Systems | 3 hours |
| 9. | Mounting Targeted Attacks with<br>Trojans and Social Engineering | 3 hours |

**Textbook:**

*Cryptography and Network Security: Principles and Practice*, 6/E
by William Stallings

Publisher: Pearson Education, Inc.
Copyright: 2014




**Assignments and home works:**

Assignments and home works will be distributed during the course. Unless otherwise is stated, all home works should be performed individually by students. The default time for submitting any home work is one week (they should be submitted before the beginning of the next lecture). All assignments and home works have to be submitted in a printed well-organized form.

**Programming Projects:**

Programming projects are assumed to be implemented in C/C++ or Java. Both of a printed documents and CD need to be submitted. Usually these can be done based on student groups to be formed during the course.

**Acknowledgements:**

- These lecture notes are mainly based on those prepared by Prof. Avinash Kak (kak@purdue.edu), Purdue University. Our sincere thanks are devoted to him.

- Thanks are also devoted to William Stallings, Bryan J. Higgs, Simon Singh, and Mostafa H. Dahshan for offering good basic materials over the net.

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department:
Stage: 4th
Instructor name: Dr. Salah Awad Salman
Academic status: Ass. Prof.
Qualification: PhD
Place of work:

# Course Weekly Outline

## Course Name: Multimedia Computing II

| | | | | | |
|---|---|---|---|---|---|
| **Course Instructor** | Dr. Salah Awad Salman | | | | |
| **E-mail** | Salah_eng1996@yahoo.com | | | | |
| **Title** | | | | | |
| **Course Coordinator** | | | | | |
| **Course Objective** | أ. تغطي هذه المادة الاساس النظري لنظم المعلومات من جانب الاوساط (النص. رسم. الصورة. الصوت والفديو)<br>ب.و ان يعرف معلومات عن كل نوع من الاوساط ) طرق ادخالها ومعالجتها واخراجها).<br>ج. ان يفهم كيفية التحويل للاوساط من الشكل المدخل الى الشكل الذي يعالج بالحاسبة وكذلك انواع الصيغ التي يخزن بها في الحاسبة.<br>د. ان يفهم الطالب الاسس التي يتم ضغط الاوساط والفائدة من ذلك. | | | | |
| **Course Description** | Media Protection, Media Retrieval, Media Distribution Across Internet, Media Communications, Internet elephony and Teleconference, Mobile Multimedia Service Over Wireless Networks | | | | |
| **Textbook** | Fundamentals of Multimedia, Ze-Nian Li, Mark S. Drew, Prentice Hall, 2003(ISBN: 0130618721 | | | | |
| **References** | Multimedia Module No: CM0340 c David Marshall 2013 | | | | |
| **Course Assessments** | TermTests | Laboratory | Quizzes | Project | Final Exam |
| | 30% | 10% | 5% | 5% | 50% |
| **General Notes** | | | | | |

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department:
Stage: 4th
Instructor name: Dr. Salah Awad Salman
Academic status: Ass. Prof.
Qualification: PhD
Place of work:

| Week | Date | Topics Covered | Lab. Experiment Assignments | Notes |
|---|---|---|---|---|
| 1 | | Media Protection | | |
| 2 | | Media Encryption | | |
| 3 | | Media Watermark | | |
| 4 | | Information Retrieval, | | |
| 5 | | Image Retrieval | | |
| 6 | | Video Retrieval | | |
| 7 | | Audio Retrieval | | |
| 8 | | Media Distribution Category, Media Streaming, Streamed Media On Demand Delivery | | |
| 9 | | Streamed Media Internet Broadcast, Streamed Media Server and Client/Player, | | |
| 10 | | Streaming Service System, Scenario and Issue of IP Telephony | | |
| 11 | | Scenario and Issue of IP Teleconference, ITU and IETF Standards for IP Telephony/conf. | | |
| 12 | | H.323 Standard Series for IP Multimedia Comm, T.120 Standard Series for Data Conferencing SIP/SDP (Session Initiation/Description Protocol) | | |
| 13 | | Mobility and Universal Services, Wireless LAN (Local Area Network), Wireless WAN (Wide Area Network) | | |
| 14 | | 3G Wireless Networks and IMT-2000, FOMA and DoCoMo Mobile Services | | |
| 15 | | WAP (Wireless Application Protocol), Techniques and Challenges in Mobile Multimedia | | |
| 16 | | Exam | | |

**Instructor Signature:** S. A **Dean Signature:**

# Course Syllabus of Data Mining(4th(I.S)2016) :

1. Overview of Data Mining.
2. Basics of data mining.
3. Related Concepts, Data mining techniques.
4. The KDD process .
5. Class Characterization and comparison, Attribute relevance analysis, Attribute oriented Induction.
6. Mining descriptive statistical measures in large databases.
7. Classification Algorithms :What is Classification? Supervised Learning, Classifier Accuracy, Decision Tree.
8. Clustering. What is clustering? Types of data.
9. Association rules.
10. Web Mining.

## References :


1. Data Mining: Concepts and Techniques, Second Edition

   Jiawei Han and Micheline Kamber.

2. DATA MINING METHODS AND MODELS, DANIEL T. LAROSE

   Department of Mathematical Sciences, Central Connecticut State University, A JOHN WILEY & SONS, INC PUBLICATION, Copyright © 2006 by John Wiley & Sons, Inc.



**Lecturer: Dr. Murtadha M. Hamad**

Republic of Iraq
Ministry of Higher Education
& Scientific Research

University: University of Anbar
College: CS & IT
Department: Information Systems
Stage: Forth
Instructor Name: Ali Makki Sagheer
Academic status: Assist. Prof.
Qualification: Computer Science PhD
Place of work: Anbar University

# Course Weekly Outline

## Course Name: Second Course

| | | | | | |
|---|---|---|---|---|---|
| **Course Instructor** | **ALI MAKKI SAGHEER** | | | | |
| **E-mail** | **ali.m.sagheer@gmail.com** | | | | |
| **Title** | **Web Application Development II** | | | | |
| **Course Coordinator** | | | | | |
| **Course Objective** | **Give the student programming language to manage Database on web application.** | | | | |
| **Course Description** | **Give overview about ASP.NET Data Providers, Command, Dataset, Dataset row count,<br>ASP.NET Database Programming, Stored Procedures,<br>ASP.NET GridView, DetailsView,<br>ASP.NET Repeater,<br>ASP.NET Communications,<br>ASP.NET Excel Automation,<br>ASP.NET Data Access** | | | | |
| **Textbook** | **Web Application Development , Free online resources for Microsoft .NET developers, Net-Informations.com, net-informations.com (C) 2013** | | | | |
| **References** | **1- Beginning ASP.NET 4.5 in CSharp and VB, Imar Spaanjaars, Joen Wiley & Suns, Inc., 2013.<br>2- Web Application Development , Free online resources for Microsoft .NET developers, Net-Informations.com, net-informations.com (C) 2013** | | | | |
| **Course Assessments** | **Term Tests** | **Laboratory** | **Quizzes** | **project** | **Final Exam** |
| | **(20%)** | **(10 %)** | **(10 %)** | **(10 %)** | **(50%)** |
| **General Notes** | | | | | |

Republic of Iraq
Ministry of Higher Education
& Scientific Research

University: University of Anbar
College: CS & IT
Department: Information Systems
Stage: Forth
Instructor Name: Ali Makki Sagheer
Academic status: Assist. Prof.
Qualification: Computer Science PhD
Place of work: Anbar University

## Course Weekly Outline

| Week | Date | Topics Covered | Lab. Experiment Assignments | Notes |
|---|---|---|---|---|
| 1 | 21/2/2016 | ASP.NET Connection, Sql Server Connection, OLEDB Connection, ODBC Connection | | |
| 2 | 28/2/2016 | ASP.NET ExecuteNonQuery<br>ExecuteScalar<br>ExecuteReader<br>DataReader<br>DataAdapter<br>DataAdapter Commands | | |
| 3 | 6/3/2016 | How to Asp.Net Dataset<br>Find Tables in a Dataset | | |
| 4 | 13/3/2016 | How to Asp.Net Dynamic Dataset<br>Dataset Column Definition | | |
| 5 | 20/3/2016 | ASP.NET DBNull Value<br>ASP.NET single quotes | | |
| 6 | 27/3/2016 | ASP.NET Procedure with Parameter<br>Range of records from database<br>ASP.NET Image to Database | | |
| 7 | 3/4/2016 | ASP.NET Simple GridView<br>Sorting , Paging and AutoGenerateColumns | | |
| 8 | 10/4/2016 | Mid Exam | | |
| 9 | 17/4/2016 | ASP.NET GridView Editing and GridView Delete | | |
| 10 | 24/4/2016 | Detailsview Update<br>Detailsview Delete<br>GridView with DetailsView | | |
| 11 | 1/5/2016 | How to Repeater<br>ASP.NET Repeater Templates<br>Repeater with HTML Table<br>ASP.NET Repeater Paging | | |
| 12 | 8/5/2016 | ASP.NET Email application | | |
| 13 | 15/5/2016 | Email Address Validation<br>ASP.NET File Upload<br>ASP.NET Email Attachment | | |
| 14 | 22/5/2016 | Export ASP.NET to Excel<br>Write content from ASP.NET to Excel | | |
| 15 | 29/5/2016 | Read Excel file from ASP.NET<br>Insert to Excel file from ASP.NET<br>Modify Excel file from ASP.NET | | |
| | | | | |

Instructor Signature:

Dean Signature:

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department: Information Systems
Stage: Third Class
Instructor name: Dr. Raed I Hamed
Academic status: Doctor
Qualification: Computer science Ph.D.
Place of work: CS & IT

# Course Weekly Outline

## Course Name : Data Mining

| | | | | | |
|---|---|---|---|---|---|
| **Course Instructor** | Dr. Raed Ibraheem Hamed | | | | |
| **E-mail** | Raed_inf@yahoo.com | | | | |
| **Title** | Data Mining | | | | |
| **Course Coordinator** | | | | | |
| **Course Objective** | This course will provide participants with an understanding of fundamental data mining methodologies and with the ability to formulate and solve problems with them. Particular attention will be paid to practical, efficient and statistically sound techniques, capable of providing not only the requested discoveries, but also estimates of their utility. The lectures will be complemented with hands-on experience with data mining software, primarily R, to allow development of basic execution skills. | | | | |
| **Course Description** | Data mining – intelligent analysis of information stored in data sets – has gained a substantial interest among practitioners in a variety of fields and industries. Nowadays, almost every organization collects data, which can be analyzed in order to support making better decisions, | | | | |
| **Textbook** | Data Mining Practical Machine Learning Tools and Techniques Third Edition Ian H. Witten Eibe Frank Mark A. Hall. USA , 2014 | | | | |
| **References** | DATA MINING AND ANALYSIS Fundamental Concepts and Algorithms. ISBN 978-0-521-76633-3 Hardback, c Mohammed J. Zaki and Wagner Meira Jr. 2014 | | | | |
| **Course Assessments** | TermTests | Laboratory | Quizzes | Project | Final Exam |
| | 40% | 15% | 5% | | 40% |
| **General Notes** | | | | | |

Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department: Information Systems
Stage: Third Class
Instructor name: Dr. Raed I Hamed
Academic status: Doctor
Qualification: Computer science Ph.D.
Place of work: CS & IT

## Course Weekly Outline

| Week | Date | Topics Covered | Lab. Experiment Assignments | Notes |
|---|---|---|---|---|
| 1 | **18/1/٢٠١6** | Course introduction. Learning from data: Why, What and How? | | Chapter1 |
| 2 | **25 /1/٢٠١6** | How to identify reliable models in Data Mining? | | Chapter2 |
| 3 | **2/2/٢٠١6** | Predictive analytics: Classification. | | Chapter2 |
| 4 | **9/2//٢٠١6** | Cost-aware analysis of classifiers. | | Chapter2 |
| 5 | **16/2/٢٠١6** | Predictive analytics: Clustering | | Chapter3 |
| 6 | **23/2/٢٠١6** | Preprocessing of data. Reduction of dimensionality. | | Chapter3 |
| 7 | **30/2//٢٠١6** | Discovering structural relationships in data: Rules and trees (Part 1). | | Chapter |
| 8 | **6/3//٢٠١6** | Discovering structural relationships in data: Rules and trees (Part 2). | | Chapter4 |
| 9 | **13/3/٢٠١6** | Descriptive analytics: Density estimation, anomaly detection, and clustering. | | Chapter5 |
| 10 | **20/3 /٢٠١6** | Predictive analytics: Associations rules | | Chapter6 |
| 11 | **27/3/٢٠١6** | Estimation of significance. | | Chapter7 |
| 12 | **4/4/ ٢٠١6** | Predictive analytics: Regression. | | Chapter8 |
| 13 | **11/4/٢٠١6** | Overview of mining complex types of data. | | Chapter8 |
| 14 | **18/4/٢٠١6** | Security and Authorization | | Chapter9 |
| 15 | **25/4/٢٠١6** | Predictive analytics: regulation system | | Chapter10 |

**Instructor Signature:** **Dean Signature:**