Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Minor**	
Course Title	**Remote Sensing**	
Course Code	**EEC 702**	
Academic Year	**2014-2015**	
Coordinator	**Prof. Mustafa Mahmoud Abd El Naby**	
Teaching Staff	**Prof. Mustafa Mahmoud Abd El Naby**	
Branch / Level	--/**Level 700**	
Semester	**First**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**16/9/2014**	

1. Course Aims

This course aims to provide the basic knowledge required by practicing engineers for dealing with remote sensing in order to:

- Be familiar with remote sensing foundations.
- Learn the use of remote sensors and image interpretation.
- Realize processing techniques for environmental and urban applications.
- Study aerial photography and photogrammetry.
- Understand visual image interpretation.

A. Knowledge and understanding:

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

a1. Identify characteristics of various sensing systems.
a2. Recognize digital image processing techniques.
a3. Outline the basic physics required for remote sensing.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Construct skills to apply remote sensing for problem solving in environmental domain.
b2. Explain the difference between multispectral and thermal sensing.
b3. Develop hyperspectral and microwave sensing techniques.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Using imagine software package (for example windows-based ERDAS).
c2. Comparing between various remote sensing techniques.

c3. Create techniques to solve the problems related to remote sensing.

D. General and transferable skills:

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

d1. This course emphasizes the understanding of the remote sensing foundations.
d2. Deal with using remote sensing data and image interpretation.
d3. Care for Aerial photography and photogrammetry

3. Course Contents

Topic No.	Topic
1,2,3	Remote sensing foundation.
4,5	Aerial photography and photogrammetry
6,7,8,9,10	Visual image interpretation
11,12	Multispectral and thermal sensing
13,14	Microwave and LIDAR sensing

4. Teaching and Learning Methods

4.1-Lecturs.
4.2-Problems solving.
4.3-Web-sites show and demonstration.
4.4-General reading and discussion.

5. Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

6.1 Course Notes

Taken by the student inside classroom

6.2 Essential Books (Text Books)

1. Lillesand, T.M., Kiefer, R.W. and Chipman, J.W. “Remote Sensing and Image Interpretation”, (6th Edition, New York: Wiley, p 756, 2007.

6.3 Recommended Books

1. Danson, F.M. and Plummer, S.E. "Advances in Environmental Remote Sensing", Chichester, UK: Wiley, p 184, 1995.
2. Richards, J.A. and Jia, X., "Remote Sensing Digital Image Analysis: An Introduction", Berlin: Springer, p 363, 1999.

6.4 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

1. PC, data show, portable display screen.
2. Overhead Projector.

	Course Coordinator	Head of Department
Name:	**Prof. Mustafa Mahmoud Abd El Naby**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**د. مصطفى محمود عبد النبي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**16/9/2014**	**16/9/2014**

5.5 Course contents – Course ILOs Matrix **Academic Year: 2014-2015**

Course Code /Title: EEC 702 / Remote Sensing

ILOs	**a** Knowledge and Understanding			**b** Intellectual Skills			**c** Professional and Practical Skills			**d** General and Transferable Skills		
Topic	a1	a2	a3	b1	b2	b3	c1	c2	c3	d1	d2	d3
1	X	X		X						X		
2			X		X			X				X
3		X	X		X		X				X	
4			X		X		X				X	X
5			X			X			X	X		

Course Coordinator: Prof. Mustafa Mahmoud Abd El Naby

Head of Department Assoc. Prof. Mahmoud A. A. Ali

Date: 16/9/2014

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Minor**	
Course Title	**Microwave Antennas**	
Course Code	**EEC 704**	
Academic Year	**2013-2014**	
Coordinator	**Prof. Mustafa Mahmoud Abd El Naby**	
Teaching Staff	**Prof. Mustafa Mahmoud Abd El Naby**	
Branch / Level	--/**Level 700**	
Semester	**First**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical /Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**15/9/2013**	

1. Course Aims

The aims of this course are to:

- Learn optical transmitter, receiver, amplifiers and other optical components, and their limitations affecting the performance of optical systems.
- Learn the design of optical communication systems based on the power budget, rise time budget and BER performance.
- Learn the design of optical network components such as, optical couplers, optical combiners, optical filters, optical multiplexers and de-multiplexers.
- Learn the wavelength division multiplexing (WDM) networks.
- Learn Optical networks: SONET/SDH.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Define the limitations affecting the performance of optical systems.
a2. Define both power budget, and rise time budget of optical system.
a3. Define different types of optical networks and their components such as couplers, filters, multiplexers, and amplifiers.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Analyze optical transmitter and receiver performance.
b2. Analyze WDM, SONET/SDH optical networks.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Build up applications including different types of optical amplifiers.
c2. Construct computer implementations of some of the considered numerical methods.

D. General and transferable skills:

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

d1. Dealing with various tools of analysis and designing.
d2. Become skilled at logical thinking

3. Course Contents

Topic No.	Topic
1,2,3	Optical transmitter, receiver, amplifiers and other optical components
4,5,6	
7,8,9	
10,11,12	
13,14	

4 4. Teaching and Learning Methods

4.1 Lectures.
4.2 Discussions
4.3 Assignments

5. Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

6.1 Course Notes

Taken by the student inside classroom

6.2 Essential Books (Text Books)

1. Govind P. Agrawal, Fiber-Optic Communication Systems, 4th Edition, November 2010.
2. V.S.Bagad, Optical Fiber Communications, Technical Publications, Jan 1, 2009.

6.3 Recommended Books

Govind P. Agrawal, Fiber-Optic Communication Systems, 4th Edition, November 2010.

6.4 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

7.1 Laptop, data show, portable display screen.
7.2 Computer lab with simulation packages such as MATLAB.

	Course Coordinator	Head of Department
Name:	**Prof. Mustafa Mahmoud Abd El Naby**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**د. مصطفى محمود عبد النبي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**15/9/2013**	**15/9/2013**

5.5 Course contents – Course ILOs Matrix **Academic Year 2013-2014**

Course Code /Title: EEC 704 / Microwave Antennas

ILOs	**a** Knowledge and Understanding			**b** Intellectual Skills		**c** Professional and Practical Skills		**d** General and Transferable Skills	
Topic	a1	a2	a3	b1	b2	c1	c2	d1	d2
1	x			x					x
2		x			x		x		
3					x				
4			x	x		x		x	
5		x					x		x

Course Coordinator: Prof. Mustafa Mahmoud Abd El Naby

Head of Department Assoc. Prof. Mahmoud A. A. Ali

Date: 15/9/2013

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Major**	
Course Title	**Selected Topics in Optical Communications**	
Course Code	**EEC 706**	
Academic Year	**2015-2016**	
Coordinator	**Assoc. Prof. Salah El Dean Khamise**	
Teaching Staff	**Assoc. Prof. Salah El Dean Khamise,** **Dr. Amr Hossain Abdallah**	
Branch / Level	--/**Level 700**	
Semester	**Second**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**13/2/2016**	

1. Course Aims

The aims of this course are to:

- Learn optical transmitter, receiver, amplifiers and other optical components, and their limitations affecting the performance of optical systems.
- Learn the design of optical communication systems based on the power budget, rise time budget and BER performance.
- Learn the design of optical network components such as, optical couplers, optical combiners, optical filters, optical multiplexers and de-multiplexers.
- Learn the wavelength division multiplexing (WDM) networks.
- Learn Optical networks: SONET/SDH.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Define the limitations affecting the performance of optical systems.
a2. Define both power budget, and rise time budget of optical system.
a3. Define different types of optical networks and their components such as couplers, filters, multiplexers, and amplifiers.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Analyze optical transmitter and receiver performance.
b2. Analyze WDM, SONET/SDH optical networks.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Build up applications including different types of optical amplifiers.
c2. Construct computer implementations of some of the considered numerical methods.

D. General and transferable skills:

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

d1. Dealing with various tools of analysis and designing.
d2. Become skilled at logical thinking

3. Course Contents

Topic No.	Topic
1,2,3	Optical transmitter, receiver, amplifiers, and other optical components, and their limitations affecting the performance of optical systems.
4,5,6	Design of optical communication systems based on the power budget, rise time budget, and BER performance.
7,8,9	Design of optical network components such as optical couplers, optical combiners, optical filters, optical multiplexers and de-multiplexers.
10,11,12	Wavelength division multiplexing (WDM) networks. Optical networks: SONET/SDH.
13,14	Computer implementations of some of the considered numerical methods

5 4. Teaching and Learning Methods

5.1 Lectures.
5.2 Discussions
5.3 Assignments

5. Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

6.5 Course Notes

Taken by the student inside classroom

6.6 Essential Books (Text Books)

3. Govind P. Agrawal, Fiber-Optic Communication Systems, 4th Edition, November 2010.
4. V.S. Bagad, Optical Fiber Communications, Technical Publications, Jan 1, 2009.

6.7 Recommended Books

Govind P. Agrawal, Fiber-Optic Communication Systems, 4th Edition, November 2010.

6.8 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

7.3 Laptop, data show, portable display screen.
7.4 Computer lab with simulation packages such as MATLAB.

	Course Coordinator	Head of Department
Name:	**Assoc. Prof/ Salah El Dean Khamise**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**د. صلاح الدين عبد الغني خميس**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**13/2/2016**	**13/2/2016**

5.5 Course contents – Course ILOs Matrix **Academic Year 2015-2016**

Course Code /Title: EEC 706 / Selected Topics in Optical Communications

ILOs	**a** Knowledge and Understanding			**b** Intellectual Skills		**c** Professional and Practical Skills		**d** General and Transferable Skills	
Topic	a1	a2	a3	b1	b2	c1	c2	d1	d2
1	x			x					x
2		x			x		x		
3					x				
4			x	x		x		x	
5		x					x		x

Course Coordinator: Assoc. Prof. Salah El Dean Khamise

Head of Department Assoc. Prof. Mahmoud A. A. Ali

Date: 13/2/2016

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Major**	
Course Title	**Selected Topics in Wireless Communications**	
Course Code	**EEC 707**	
Academic Year	**2015-2016**	
Coordinator	**Assoc. Prof. Mahmoud Ahmed Attia Ali**	
Teaching Staff	**Assoc. Prof. Mahmoud Ahmed Attia Ali** **Dr. Mahmoud Mohamed Mahmoud Selem**	
Branch / Level	--/**Level 700**	
Semester	**Second**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**13/2/2016**	

1. Course Aims

The aims of this course are to:

- Be familiar with principles of wireless communications, wireless networking architectures.
- Understand air interfaces: WiMAX and WIFI.
- Be familiar with WAP family of protocols.
- Study wireless messaging protocols and systems.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Describe theory and practice of new technologies and services in the field of wireless communications and services.
a2. Describe behaviour of WiMAX and WIFI system.
a3. Give example of usage of WiMAX and WIFI system.
a4. State the advantage of WiMAX and WIFI.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Distinguish between WiMAX and WIFI system.
b2. Analyse behaviour of WiMAX and WIFI.
b3. Analyse behaviour of WAP family of protocols.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Build up design of wireless services

c2. Create a utilization of communications technologies.

D. General and transferable skills:

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

d1. Familiarize with WiMAX and WIFI system.
d2. Familiarize with WAP family of protocols.
d3. Familiarize with wireless messaging protocols.

3. Course Contents

Topic No.	Topic
1, 2	Introduction: principles of wireless communications, wireless networking architectures.
3, 4,	Air interfaces: WiMAX-last mile broadband access, DBA-bandwidth management, DVB-T-broadcast transmission for digital TV, W-CDMA wideband spread spectrum for the 3G cellular networks, Wi-Fi-home and community wireless access points, Bluetooth-ad-hoc personal access network.
5, 6	Multimedia coding standards: A/D and D/A conversion principles, audio and video compression, standard audio codecs, standard video codecs
7, 8	Transport control protocols: suitability of various TCP implementations different TCP (Tahoe, Reno, New Reno, and SACK) for wireless communications, media transport control protocol (MTCP)
9, 10, 11	Wireless messaging protocols and systems: IMPS, SMS, MMS
12, 13, 14	WAP family of protocols: GPRS, USSD, WTP, WTLS, WSP; Wireless Application Environments and Wireless Mark-up Language

4. Teaching and Learning Methods

4.1-Lecturs.
4.2-Problems solving.
4.3-Web-sites show and demonstration.
4.4-General reading and discussion.

5 Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

1.1 Course Notes

Taken by the student inside classroom.

1.2 Essential Books (Text Books)

1. Artech House, “OFDM for Wireless Communications System”, 2004.
2. Artech House, “OFDM for Wireless Multimedia Communications”, 2000.

1.3 Recommended Books

1. Kluwer, "Multi Carrier Digital Communications Theory and Applications of OFDM", Last Edition.

1.4 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

7.1 Laptop, data show, portable display screen.
7.2 Computer lab with simulation packages such as MATLAB, Multisim, and ISE Xilinc.

	Course Coordinator	Head of Department
Name:	**Assoc. Prof/ Mahmoud A. A. Ali**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**د. محمود أحمد عطية علي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**13/2/2016**	**13/2/2016**

5.5 Course contents – Course ILOs Matrix **Academic Year: Second 2015-2016**

Course Code /Title: EEC 707 / Selected Topics in Wireless Communications

ILOs	**a** Knowledge and Understanding				**b** Intellectual Skills			**c** Professional and Practical Skills		**d** General and Transferable Skills		
Topic	a1	a2	a3	a4	b1	b2	b3	c1	c2	d1	d2	d3
1	X				X	X				X	X	
2		X			X	X	X			X	X	
3		X	X	X		X						X
4		X		X		X			X	X	X	
5				X	X			X			X	
6			X	X	X			X		X	X	

Course Coordinator: Assoc. Prof/ Mahmoud A. A. Ali

Head of Department Assoc. Prof. Mahmoud A. A. Ali

Date: 13/2/2016

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Minor**	
Course Title	**Selected Topics in Security and Encryption**	
Course Code	**EEC 708**	
Academic Year	**2014-2015**	
Coordinator	**Prof. Mustafa Mahmoud Abd El Naby**	
Teaching Staff	**Prof. Mustafa Mahmoud Abd El Naby**	
Branch / Level	--/**Level 700**	
Semester	**Second**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**7/2/2015**	

1. Course Aims

The aims of this course are to:

- Learn cryptographic hash functions
- Recognize message authentication codes
- Be familiar with digital signatures
- Be familiar with key management and distribution
- Recognize user authentication protocols
- Understand transport level security
- Realize wireless network security
- Know electronic mail security
- Realize IP security.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Give examples for cryptographic hash functions.
a2. Give examples for message authentication codes.
a3. Describe digital signatures
a4. Describe key management and distribution
a5. Outline user authentication protocols
a6. Describe transport level security.
a7. Recognize wireless network security.
a8. Outline electronic mail security.
a9. Describe IP security.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Comment cryptographic hash functions.
b2. Compare message authentication codes.
b3. Comment digital signatures.
b4. Summarize key management and distribution.
b5. Compare user authentication protocols.
b6. Comment transport level security.
b7. Analyze wireless network security
b8. Analyze IP security.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Construct simulation programs for calculating hash functions.
c2. Build up knowledge on message authentication codes and digital signatures.
c3. Assemble a simple network (wired or wireless) and implement security options and standards in it.

D. General and transferable skills:

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

d1. Familiarize cryptographic data integrity algorithms.
d2. Familiarize and mutual trust.
d3. Become skilled at network and internet security.

3. Course Contents

Topic No.	Topic
1, 2	Cryptographic hash functions
3	Message authentication codes
4, 5	Digital signatures
6, 7	Key management and distribution
8, 9	User authentication protocols
10	Transport level security
11, 12	Wireless network security
13	Electronic mail security
14	IP security

4. Teaching and Learning Methods

4.1-Lecturs.

4.2-Discussion.
4.3-Assinments.

5 Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

1.5 Course Notes

Taken by the student inside classroom.

1.6 Essential Books (Text Books)

1. William Stallings, "Cryptography and Network Security Principles and Practice", Last Edition.

1.7 Recommended Books

1. William Stallings, "Cryptography and Network Security Principles and Practice", Last Edition

1.8 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

7.1 Laptop, data show, portable display screen.
7.2 Computer lab with simulation packages such as MATLAB, Multisim, and ISE Xilinc.

	Course Coordinator	Head of Department
Name:	**Prof. Mustafa Mahmoud Abd El Naby**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**أ.د مصطفى محمود عبد النبي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**7/2/2015**	**7/2/2015**

5.5 Course contents – Course ILOs Matrix **Academic Year: Second 2014-2015**

Course Code /Title: EEC 708 / Selected Topics in Security and Encryption

ILOs	a Knowledge and Understanding									b Intellectual Skills								c Professional and Practical Skills			d General and Transferable Skills		
Topic	a1	a2	a3	a4	a5	a6	a7	a8	a9	b1	b2	b3	b4	b5	b6	b7	b8	c1	c2	c3	d1	d2	d3
1	X									X								X			X		
2		X									X												
3			X									X											
4				X									X						X			X	
5					X									X					X			X	
6						X									X								
							X									X				X			X
								X												X			X
									X								X			X			X

Course Coordinator: Prof. Mustafa Mahmoud Abd El Naby

Head of Department: Assoc. Prof. Mahmoud A. A. Ali **Date:** 7/2/2015

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Minor**	
Course Title	**Selected Topics in Communication Networks**	
Course Code	**EEC 709**	
Academic Year	**2014-2015**	
Coordinator	**Prof. Mustafa Mahmoud Abd El Naby**	
Teaching Staff	**Prof. Mustafa Mahmoud Abd El Naby**	
Branch / Level	--/**Level 700**	
Semester	**Second**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**7/2/2015**	

1. Course Aims

The aims of this course are to:

- Be familiar with mobility in wireless communication networks.
- Recognize WIMAX/802.16 broadband wireless networks.
- Know mobile RFID service networks.
- Learn network monitoring.
- Understand multimedia transmission over the internet.
- Learn security in mobile Ad Hoc networks.
- Be familiar with identity management in mobile communication systems.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Outline mobility in wireless communication networks.
a2. Recognize WIMAX/802.16 broadband wireless networks.
a3. Describe mobile RFID service networks.
a4. Describe network monitoring principles.
a5. Give examples for implementations of multimedia transmission over the internet.
a6. Recognize security in mobile Ad Hoc networks.
a7. Recognize identity management in mobile communication systems.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Critic mobility in wireless communication networks.

b2. Comment WIMAX/802.16 broadband wireless networks.
b3. Describe mobile RFID service networks.
b4. Explain network monitoring principles.
b5. Analyse multimedia transmission over the internet.
b6. Evaluate security in mobile Ad Hoc networks.
b7. Explain and compare identity management in mobile communication systems.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Confirm the benefits, pros and cons for the wireless communication networks.
c2. Build up knowledge about mobile RFID, network monitoring.

D. General and transferable skills:

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

d1. Familiarize the different types and uses of wireless communication networks.
d2. Be trained to network monitoring.

3. Course Contents

Topic No.	Topic
1, 2	Mobility in Wireless Communication Networks
3, 4	WIMAX/802.16 Broadband Wireless Networks
5, 6	.The System Framework and Its Application in a Mobile RFID Service networks.
7, 8	.The Principles of Network Monitoring
9, 10	Adaptive Multimedia Transmission Over the Internet
11, 12	Security in Mobile Ad Hoc Networks
13, 14	Identity Management in Mobile Communication Systems

4. Teaching and Learning Methods

4.1-Lectures.
4.2-Discussions.
4.3-Assignments.

5 Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

1.9 Course Notes

Taken by the student inside classroom.

1.10 Essential Books (Text Books)

Sudipmisra, subhaschandramisra, isaacwoungang, "Selected Topics in Communication Networks and Distributed Systems", Last Edition.

1.11 Recommended Books

Sudipmisra, subhaschandramisra, isaacwoungang, "Selected Topics in Communication Networks and Distributed Systems", Last Edition.

1.12 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

7.1 Laptop, data show, portable display screen.
7.2 Computer lab with simulation packages such as MATLAB, Multisim, Op net and NS2.

	Course Coordinator	Head of Department
Name:	**Prof. Mustafa Mahmoud Abd El Naby**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**أ.د مصطفى محمود عبد النبي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**7/2/2015**	**7/2/2015**

5.5 Course contents – Course ILOs Matrix **Academic Year: Second 2014-2015**

Course Code /Title: EEC 7٠9 / Selected Topics in Communication Networks

ILO s	**a** Knowledge and Understanding							**b** Intellectual Skills							**c** Professional and Practical Skills		**d** General and Transferable Skills	
Topic	a1	a2	a3	a4	a5	a6	a7	b1	b2	b3	b4	b5	b6	b7	c1	c2	d1	d2
1	X							X							X			
2		X							X						X		X	
3			X							X					X		X	
4				X							X					X		X
5					X							X						
6						X							X					
7							X							X		X		

Course Coordinator: Prof. Mustafa Mahmoud Abd El Naby

Head of Department: Assoc. Prof. Mahmoud A. A. Ali

Date: 7/2/2015

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Major**	
Course Title	**Selected Topics in Multimedia Communications**	
Course Code	**EEC 710**	
Academic Year	**2015-2016**	
Coordinator	**Prof. Mustafa Mahmoud Abd El Naby**	
Teaching Staff	**Prof. Mustafa Mahmoud Abd El Naby**	
Branch / Level	--/**Level 700**	
Semester	**First**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**28/9/2015**	

1. Course Aims

The aims of this course are to:

- In this course, students will be introduced to principles and current technologies of multimedia systems.
- Issues in effectively representing, processing, and retrieving multimedia data such as sound and music, graphics, image and video will be addressed.
- The students will gain hands-on experience in those areas by implementing some components of a multimedia streaming system as their term project.
- Latest Web technologies and some advanced topics in current multimedia research will also be discussed..

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Fundamentals of multimedia, media and data streams, sound/audio, image, graphics, video and animation.
a2. Topics in data compression including coding requirements, source, entropy, and hybrid coding, JPEG, H.261 (px64), MPEG, MP3 and etc.
a3. Computer technology issues such as communication architecture, multimedia workstations, cache systems, storage systems and optical storage.
a4. Multimedia operating system issues such as real-time operation, resource management, process management, file systems, and Multimedia networking.

a5. Multimedia synchronization, presentation requirements, reference model, and synchronization techniques.
a6. Multimedia database issues such as data organization, indexing and retrieval.
a7. Multimedia applications including digital libraries, system software, toolkits, conferencing paradigms, structured interaction support, and examples from video/audio/graphics conferencing.
a8. Latest Web technologies, such as XML, X3D and Semantic Web..

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Analyse principles and current technologies of multimedia systems.
b2. Analyse the components of a multimedia streaming system.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Analyse components of a multimedia streaming system.
c2. Familiar Multimedia applications including digital libraries, system software, toolkits, conferencing paradigms, structured interaction support, and examples from video/audio/graphics conferencing.

D. General and transferable skills:

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

d1. Face and solve unexpected technical problems related to annotated topics.
d2. Manipulate and utilize the various tools of analysis, design, and related web-sites.
d3. Familiarities students with the correct methods of dealing with equipment.
d4. Familiar with latest web technologies, such as XML, X3D and Semantic Web.

3. Course Contents

Topic No.	Topic
1	Introduction
2	Video/Audio Fundamentals
3	Data Compression
4	Image Compression
5	Video Compression
6	Audio Compression
7	Multimedia Network Fundamentals
8	Multimedia Protocols for the Internet
9	Multimedia Networking Services
10	Multimedia OS design and implementation
11	Multimedia Storage Systems

12	Multimedia Synchronization
13	Multimedia Presentation and Web Technologies
14	Multimedia Databases
15	P2P Multimedia Systems
16	Advanced research issues

4. Teaching and Learning Methods

4.1-Lectures.
4.2-Discussions.
4.3-Assignments.

5 Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

6.1 Course Notes

Taken by the student inside classroom.

6.2 Essential Books (Text Books)

1. Ze-Nian Li, and Mark S. Drew, "Fundamentals of Multimedia, Pearson Prentice Hall, October 2003.
2. K. Rammohanarao, Z. S. Bolzkovic, D. A. Milanovic, "Multimedia Communication Systems", 1st edition, Prentice Hall, May 2002.
3. Yao Wang, Joern Ostermann, and Ya-Qin Zhang, Video Processing and Communications, Prentice Hall, 2002.
4. Michael Rabinovich and Oliver Spatscheck, "Web Caching and Replication", Addison-Wesley, 2002.
5. Fred Halsall, Addison, "Multimedia Communications: Applications, Networks, Protocols and Standards", Wesley, 2001.
6. Latest publications in multimedia related conferences and journals.

6.3 Recommended Books

1. Ze-Nian Li, and Mark S. Drew, "Fundamentals of Multimedia, Pearson Prentice Hall, October 2003.

6.4 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

7.1 Laptop, data show, portable display screen.
7.2 Computer lab with simulation packages such as MATLAB, Multisim, and ISE Xilinc.

	Course Coordinator	Head of Department
Name:	**Prof. Mustafa Mahmoud Abd El Naby**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**أ.د مصطفى محمود عبد النبي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**28/9/2015**	**28/9/2015**

5.5 Course contents – Course ILOs Matrix Academic Year: First 2015-2016

Course Code /Title: EEC 710 / Selected Topics in Multimedia Communications

ILOs	a Knowledge and Understanding								b Intellectual Skills					c Professional and Practical Skills					d General and Transferable Skills			
Topic	a1	a2	a3	a4	a5	a6	a7	a8	b1	b2	b3	b4	b5	c1	c2	c3	c4	c5	d1	d2	d3	d4
1	X	X							X					X	X				X			
2	X					X			X	X				X					X	X		
3		X				X				X					X				X	X		
4		X							X	X				X	X						X	
5			X						X						X					X	X	
6		X	X		X				X	X					X						X	
7				X					X	X				X	X					X	X	X
8				X					X													X
9					X				X	X				X						X		X
10					X				X	X				X	X					X		X
11						X		X		X					X					X	X	X
12			X			X		X		X					X						X	
13			X				X			X					X						X	
14							X			X					X					X	X	X
15			X					X		X					X					X		X
16			X					X		X					X					X		X

Course Coordinator: Prof. Mustafa Mahmoud Abd El Naby

Head of Department: Assoc. Prof. Mahmoud A. A. Ali

Date: 28/9/2015

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Minor**	
Course Title	**Selected Topics in Sensor Networks**	
Course Code	**EEC 711**	
Academic Year	**2014-2015**	
Coordinator	**Prof. Mustafa Mahmoud Abd El Naby**	
Teaching Staff	**Prof. Mustafa Mahmoud Abd El Naby**	
Branch / Level	--/**Level 700**	
Semester	**First**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**16/9/2014**	

1. Course Aims

This course aims to provide the basic knowledge required by practicing engineers for dealing with sensor networks in order to:

- Understand the sensor network combination of sensing, communication and computation.
- Be familiar with fundamental issues in designing and analysing ad-hoc/sensor network.
- Study protocol design, communication, and computational challenges posed by these systems.
- Realize the performance of various protocols of sensor networks.
- Learn how to program and communicate with embedded operating system.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Define major issues associated with ad hoc/sensor networks.
a2. Identify current ad-hoc/sensor technologies by researching key areas such as algorithms, protocols, hardware, and applications.
a3. Show how to obtain detailed information about the operational environment using these systems.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Distinguish technologies and standards ranging from networking, OS support and algorithms, to security.

b2. Explain the challenges in designing MAC, routing and transport protocols for wireless ad-hoc/sensor

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Construct ad-hoc/sensor networks, program on the sensor hardware.
c2. Create the ability to implement or develop algorithms involved in ad-hoc/sensor systems.
c3. Build up hands-on experience through real-world programming projects on ad-hoc/sensor hardware

D. General and transferable skills:

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

d1. Participate effectively as a team member.
d2. Develop specialized IT skills in a self-selected specialty area.
d3. Be trained to design and develop a software prototype.

3. Course Contents

Weeks	Topic
1	Unique features of Sensor Networks
2, 3	Deployment of ad-hoc/sensor network
4, 5	Sensor tasking and control
6, 7	Sensor Network Platforms and Tools
8, 9	Sensor network programming challenges
10, 11	Embedded Operating System
12, 13	Ultra wide band radio communication
14	Wireless fidelity systems

4. Teaching and Learning Methods

4.1-Lecturs.
4.2-Problems solving.
4.3-Web-sites show and demonstration.
4.4-General reading and discussion.

5 Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

6.1 Course Notes

Taken by the student inside classroom.

6.2 Essential Books (Text Books)

1 H. Karl and A. Willig, "Protocols and Architectures for Wireless Sensor Networks" Last Edition.

6.3 Recommended Books

1. F. Zhao & Leonidas J. Guibas, "Wireless Sensor Networks: An Information Processing Approach", Last Edition.

6.4 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

7.1 Laptop, data show, portable display screen.
7.2 Overhead Projector.

	Course Coordinator	Head of Department
Name:	**Prof. Mustafa Mahmoud Abd El Naby**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**أ.د مصطفى محمود عبد النبي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**16/9/2014**	**16/9/2014**

5.5 Course contents – Course ILOs Matrix **Academic Year: First 2014-2015**

Course Code /Title: EEC 711 / Selected Topics in Sensor Networks

ILOs	**a** Knowledge and Understanding						**b** Intellectual Skills						**c** Professional and Practical Skills					**d** General and Transferable Skills		
Topic	a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	b5	b6	c1	c2	c3	c4	c5	d1	d2	d3
1	X	X					X						X					X	X	X
2		X	X					X						X					X	X
3								X					X					X	X	
4		X						X					X							X
5			X					X						X					X	
6	X		X				X							X					X	X
7	X		X				X							X				X	X	
8		X						X										X	X	X

Course Coordinator: Prof. Mustafa Mahmoud Abd El Naby

Head of Department: Assoc. Prof. Mahmoud A. A. Ali

Date: 16/9/2014

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Minor**	
Course Title	**Selected Topics in UWB**	
Course Code	**EEC 712**	
Academic Year	**2015-2016**	
Coordinator	**Assoc. Prof. Mahmoud Ahmed Attia Ali**	
Teaching Staff	**Assoc. Prof. Mahmoud Ahmed Attia Ali** **Dr. Intisar Saied Gameeye**	
Branch / Level	--/**Level 700**	
Semester	**Second**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**13/2/2016**	

1. Course Aims

The aims of this course are to:

- Learn the selected topics in modern telecommunications including digital telecommunication systems performance criteria.
- Learn the spread spectrum techniques, multiple access communications, wideband and ultra-wide band technology.
- Learn the modern digital telecommunications systems design consideration. Equalization techniques. Spread spectrum (SS) techniques. Pseudorandom sequences. SS systems synchronization. CDMA. Multicarrier communications. Trellis coded modulation. Multiple access communications. Diversity techniques.
- Learn the different MIMO technologies. WCDMA and UWB. Trends in future developments of modern telecommunications.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Define digital telecommunication systems performance criteria.
a2. Define spread spectrum techniques, multiple access communications, wideband and ultra-wide band technology.
a3. Define different MIMO, WCDMA and UWB technologies.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Analyze spread spectrum systems.
b2. Analyze multiple access communication techniques.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved:

c1. Build up applications including CDMA, MC-CDMA, and OFDM.
c2. Construct computer implementations of some of the considered numerical methods.

D. General and transferable skills:

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

d1. Dealing with various tools of analysis and designing.
d2. Become skilled at logical thinking

3. Course Contents

Weeks	Topic
1, 2, 3	Selected topics in modern telecommunications including digital telecommunication systems performance criteria.
4, 5, 6	Spread spectrum techniques, multiple access communications, wideband and ultra wide band technology.
7, 8, 9	Modern digital telecommunications systems design consideration. Equalization techniques. Spread spectrum (SS) techniques. Pseudorandom sequences. SS systems synchronization. CDMA. Multicarrier communications. Trellis coded modulation. Multiple access communications. Diversity techniques.
10,11,12	Different MIMO technologies. WCDMA and UWB. Trends in future developments of modern telecommunications.
13,14	Computer implementations of some of the considered numerical methods

4. Teaching and Learning Methods

4.1-Lectures.
4.2-Discussions
4.3-Assignments

5. Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,5,7,10	30 %

6. List of references

6.1- **Course Notes**

Taken by the student inside classroom

6.2- **Essential Books (Text Books)**

1- Ipatov V., "Spread Spectrum and CDMA Principles and Applications", John Wiley & Sons Ltd, London, 2005.
2- Ghavami M., Michael L.B. and Kohno R., "Ultra Wideband Signals and Systems in Communication Engineering" 2ed Edition, John Wiley & Sons Ltd, London, 2007.

6.3- **Recommended Books**

Ghavami M., Michael L.B. and Kohno R., "Ultra Wideband Signals and Systems in Communication Engineering" 2ed Edition, John Wiley & Sons Ltd, London, 2007.

6.4- **Periodicals, Web Sites, …etc.**

To be sited during the course

7. Facilities required for teaching and learning

7.1- Laptop, data show, portable display screen.
7.2- Computer Lab with simulation Packages such as MATLAB.

	Course Coordinator	Head of Department
Name:	Assoc. Prof/ Mahmoud A. A. Ali	Assoc. Prof/ Mahmoud A. A. Ali
Name (Arabic)	د. محمود أحمد عطية علي	د. محمود أحمد عطية علي
Signature:		
Date:	13/2/2016	13/2/2016

5.5 Course contents – Course ILOs Matrix **Academic Year: Second 2015-2016**

Course Code / Course Title: EEC 712 / Selected Topics in UWB

Course Contents	Course Outcomes ILOs								
	Knowledge and Understanding			Intellectual		Practical		Transferable	
Number	a1	a2	a3	b1	b2	c1	c2	d1	d2
1	x			x					x
2		x			x		x		
3					x				
4			x	x		x		x	
5		x					x		x

Course Coordinator: Associate Prof. Mahmoud A. A. Ali

Head of Department: Associate Prof. Mahmoud A. A. Ali

Date: 13/2/2016

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Minor**	
Course Title	**Selected Topics in Signal Processing**	
Course Code	**EEC 713**	
Academic Year	**2014-2015**	
Coordinator	**Assoc. Prof. Mahmoud Ahmed Attia Ali**	
Teaching Staff	**Assoc. Prof. Mahmoud A. A. Ali,** **Dr. Intisar Saied Gameey**	
Branch / Level	--/**Level 700**	
Semester	**First**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical / Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**16/9/2014**	

1. Course Aims

The aims of this course are to:

1- Learn the basic discrete-time systems concepts, such as linearity, time-invariance, impulse response, convolution, FIR and IIR filters, causality, stability, z-transforms, transfer functions, frequency response, time constants, transient and steady-state response.

2- Learn applications of linear time-invariant systems, Convolution and transfer functions, Laplace transforms and z-transforms, and Difference equations.

3- Learn how to implement digital filters in software and hardware, using block processing methods based on convolution, or real-time sample-by-sample processing methods based on block diagram realizations that are implemented with linear or circular delay-line buffers.

4- Learn applications of the Discrete Fourier Transform and the Fast Fourier Transform and their use in spectral analysis, data compression, and fast convolution.

5- Learn the trade-offs between frequency resolution and signal duration and the use of windows for reducing frequency leakage. Ability to perform short FFTs by hand.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. Define discrete-time systems concepts.
a2. Define linear time-invariant systems, Convolution and transfer functions, and Laplace transforms and z-transforms techniques.
a3. Define digital filters in software and hardware- Discrete Fourier Transform and the Fast Fourier Transform.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Analyze discrete-time systems
b2. Analyze Discrete Fourier Transform "DFT" and the Fast Fourier Transform "FFT" and their use in spectral analysis, data compression, and fast convolution.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved:

c1. Build up Applications including DFT, and FFT.
c2. Construct Computer implementations of some of the considered numerical methods.

D. General and transferable skills:

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

d1. Dealing with various tools of analysis and designing.
d2. Become skilled at logical thinking.

3. Course Contents

Weeks	Topic
1,2,3	Basic discrete-time systems concepts, such as linearity, time-invariance, impulse response, convolution, FIR and IIR filters, causality, stability, z-transforms, transfer functions, frequency response, time constants, transient and steady-state response.
4,5,6	Linear time-invariant systems, Convolution and transfer functions, Laplace transforms and z-transforms, and Difference equations.
7,8,9	Implementation digital filters in software and hardware, using block processing methods based on convolution, or real-time sample-by-sample processing methods
10,11,12	Discrete Fourier Transform and the Fast Fourier Transform and their use in spectral analysis, data compression, and fast convolution.
13,14	Computer implementations of some of the considered numerical methods

4. Teaching and Learning Methods

4.1-Lectures.
4.2-Discussions
4.3-Assignments

5. Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,5,7,10	30 %

6. List of references

6.1 Course Notes

Taken by the student inside classroom

6.2 Essential Books (Text Books)

1. S. K. Mitra, "Digital Signal Processing", 4th ed., McGraw-Hill, 2011, or equivalent.
2. S.J. Orfanidis, "Introduction to Signal Processing", Prentice-Hall, 1996, and available freely online from: http://www.ece.rutgers.edu/~orfanidi/intro2sp/

6.3 Recommended Books

S. K. Mitra, Digital Signal Processing, 4th ed., McGraw-Hill, 2011, or equivalent.

6.4 Periodicals, Web Sites, … etc.

To be sited during the course

7. Facilities required for teaching and learning

7.3- Laptop, data show, portable display screen.
7.4- Computer Lab with simulation Packages such as MATLAB. Multisim, and ISE Xilinc.

	Course Coordinator	Head of Department
Name:	**Assoc. Prof/ Mahmoud A. A. Ali**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**د. محمود أحمد عطية علي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**16/9/2014**	**16/9/2014**

5.5 Course contents – Course ILOs Matrix **Academic Year: First 2014-2015**

Course Code / Course Title: EEC 713 / Selected Topics in Signal Processing

ILOs	**a** Knowledge and Understanding			**b** Intellectual Skills		**c** Professional and Practical Skills		**d** General and Transferable Skills	
Topic	a1	a2	a3	b1	b2	c1	c2	d1	d2
1	x			x					x
2		x			x		x		
3					x				
4			x	x		x		x	
5		x					x		x

Course Coordinator: Associate Prof. Mahmoud A. A. Ali

Head of Department: Associate Prof. Mahmoud A. A. Ali

Date: 16/9/2014

Course Specification

University	**Tanta**	
Faculty	**Engineering**	
Major or Minor Element of Program	**Minor**	
Course Title	**Selected Topics on Antennas Arrays**	
Course Code	**EEC 714**	
Academic Year	**2013-2014**	
Coordinator	**Prof. Mustafa Mahmoud Abd El Naby**	
Teaching Staff	**Prof. Mustafa Mahmoud Abd El Naby**	
Branch / Level	--/**Level 700**	
Semester	**First**	
Pre-Requisite	--	
Course Delivery	**Lecture 3**	**14 x 3=42 h lectures**
	Practical /Tutorial 0	
Department Offering the Program	**Electronics and Electrical Communication Engineering**	
Department Offering the Course	**Electronics and Electrical Communication Engineering**	
Date of Specification Approval	**15/9/2013**	

1. Course Aims

The aims of this course are to:

- To enable the student to study the various types of antennas and wave propagation.

2. Intended Learning outcomes (ILOs)

A. Knowledge and understanding:

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

a1. To study radiation from a current element.
a2. To study antenna arrays.
a3. To study aperture antennas.
a4. To learn special antennas such as frequency independent and broad band antennas.
a5. To study radio wave propagation.

B. Intellectual skills:

Throughout the course the student will be able to:

b1. Analyze principles of antennas.
b2. Analyze the frequency independent and broad band antennas.

C. Professional and practical skills:

Upon successful completion of the course student will be devolved to:

c1. Analyze different types if antenna elements and arrays.
c2. Design an antenna with HFSS tools.

D. General and transferable skills:

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

d1. Face and solve unexpected technical problems related to annotated topics Face and solve unexpected technical problems related to annotated topics.
d2. Manipulate and utilize the various tools of analysis, design, and related web-sites.
d3. Familiarities students with the correct methods of dealing with equipments.

3. Course Contents

Topic No.	Topic
1, 2	R ADIATION FIELDS OF WIRE ANTENNAS
3, 4, 5	A NTENNA FUNDAMENTALS AND ANTENNA ARRAYS
6, 7	T RAVELLING WAVE (WIDEBAND) ANTENNAS
8, 9, 10	A PERTURE AND LENS ANTENNAS
11, 12	P ROPAGATION
13, 14	S MART ANTENNAS

6 4. Teaching and Learning Methods

6.1 Lectures.
6.2 Discussions
6.3 Assignments

5. Student Assessment

Assessment Method	Assessment Length	Schedule	Proportion
Written Examination	3h	On week 15	70 %
Oral Assessment	--	--	0.0%
Practical Examination	--	--	0.0%
Semester work	5h(overall)	On week 2,6,8,10,12	30 %

6. List of references

6.1 Course Notes

Taken by the student inside classroom

6.2 Essential Books (Text Books)

1 E .C.Jordan and Balmain, "Electro Magnetic Waves and Radiating Systems", PHI, 1968, Reprint 2003.

2 John D.Kraus and Ronalatory Marhefka, "Antennas", Tata McGraw-Hill Book Company, 2002.
3 R .E.Collins, 'Antennas and Radio Propagation ", McGraw-Hill, 1987.
4 Ballany , "Antenna Theory " , John Wiley & Sons, second edition , 2003.

6.3 Recommended Books

1 E .C.Jordan and Balmain, "Electro Magnetic Waves and Radiating Systems", PHI, 1968, Reprint 2003.

6.4 Periodicals, Web Sites, …etc.

To be sited during the course

7- Facilities Required for Teaching and Learning

7.1 Laptop, data show, portable display screen.
7.2 Computer Lab with simulation Packages such as MATLAB, Multisim, and ISE.

	Course Coordinator	Head of Department
Name:	**Prof. Mustafa Mahmoud Abd El Naby**	**Assoc. Prof/ Mahmoud A. A. Ali**
Name (Arabic)	**د. مصطفى محمود عبد النبي**	**د. محمود أحمد عطية علي**
Signature:		
Date:	**15/9/2013**	**15/9/2013**

5.5 Course contents – Course ILOs Matrix **Academic Year: First 2013-2014**

Course Code /Title: EEC 714 / Selected Topics on Antennas Arrays

ILOs	**a** Knowledge and Understanding						**b** Intellectual Skills					**c** Professional and Practical Skills					**d** General and Transferable Skills			
Topic	a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	b5	c1	c2	c3	c4	c5	d1	d2	d3	
1	X						X					X					X			
2	X		X					X				X						X		
3		X	X										X				X	X		
4					X			X				X							X	
5				X	X		X						X				X	X		
6				X	X			X					X						X	

Course Coordinator: Prof. Mustafa Mahmoud Abd El Naby

Head of Department: Assoc. Prof. Mahmoud A. A. Ali

Date: 15/9/2013