University of Sana'a
Faculty of Engineering
Department: Electrical Engineering
Title of the Program: Communication Engineering and Networks

Course Specification of Wireless Sensor Networks

I. Course Identification and General Information:

1.	Course Title:	Wireless Sensor Networks				
2.	Course Code & Number:	CNE448				
3.	Credit hours:	C.H				Total
		Th.	Tu.	Pr.	Tr.	
		2	-	2	-	3
4.	Study level/ semester at which this course is offered:	Fifth Year/ First Semester				
5.	Pre –requisite (if any):	Communication Networks				
6.	Co –requisite (if any):	Mobile Communications (CNE435)				
7.	Program (s) in which the course is offered:	Communication Engineering and Networks				
8.	Language of teaching the course:	Arabic & English				
9.	Location of teaching the course:	Faculty of Engineering, Sana'a University				
10.	Prepared By:	Asst. Prof. Dr. Yahya Al-Naggar				
11.	Date of Approval	2020				

II. Course Description:

The course is designed to cover the main concepts of wireless sensor networks including architecture, types, hardware platforms, applications, requirements, protocols and standards. The course also covers the design issues of wireless sensor networks design and planning such as frequency, transmission rate, distance, power, and security. The focus will be on physical layer techniques, medium access control, routing, auto-configuration, clustering, topology management, quality of service (QoS) reliable transport, energy conservation, mobility management, localization and service discovery. Also, the course provides fundamental concepts modeling and simulation of wireless sensor network, as well as practical application case studies such as health, environmental monitoring and smart home.

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Asst. Prof. Dr. Mohammed Alwadeai	Asst. Prof. Dr. Adel Ahmed Al-Shakiri	Assoc. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Center & Quality Assurance Assoc. Prof. Dr. Huda Al-Emad

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III. Course Intended learning outcomes (CILOs) of the course	Referenced PILOs
a1 Explain the main concepts of wireless sensor networks including types architecture, applications, requirements, protocols and standards.	A2
a2 Recognize the main issues of wireless sensor networks design and planning such as frequency, transmission rate, distance, power, and security.	A2
b1 Compare between wireless sensor networks structure, applications, and techniques.	B4
b2 Analyze requirements and propose the most appropriate wireless sensor technique to solve a particular networking problem in enterprise network.	B3
c1 Implement a particular wireless sensor network using network simulation with the best practice and techniques.	C2
c2 Apply analysis tools of simulators to examine a specific issue related to wireless sensor networks in terms of the most common performance metrics.	C4
d1 Cope the modern modeling tools of wireless sensor networks.	D1
d2 Present technical ideas and wireless sensor networks solutions based on the acquired knowledge.	D4

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1- Explain the main concepts of wireless sensor networks including types architecture, applications, requirements, protocols and standards.	- Active lectures - Tutorials - Seminar/project/presentation - Interactive class discussions - Exercises and home works	- Written tests (Mid and final Terms) - Written assessments such as multiple-choice questions and Quizzes

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		- Home works and assignments - Presentations
a2- Recognize the main issues of wireless sensor networks design and planning such as frequency, transmission rate, distance, power, and security.	- Active lectures - Tutorials - Seminar/project/presentation - Interactive class discussions - Exercises and home works	- Written tests (Mid and final Terms) - Written assessments such as multiple-choice questions and Quizzes - Home works and assignments - Presentations

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	**Teaching strategies**	**Assessment Strategies**
b1- Compare between wireless sensor networks structure, applications, and techniques.	- Active lectures - Tutorials - Interactive class discussions - Exercises and home works - Directed self- study - Problem based learning	- Written tests (Mid and final Terms) - Written assessments such as multiple-choice questions and Quizzes - Multi-competency comprehensive assessments - Home works and assignments
b2- Analyze requirements and propose the most appropriate wireless sensor technique to solve a particular networking	- Active lectures - Tutorials - Interactive class discussions	- Written tests (Mid and final Terms)

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problem in enterprise network.	- Exercises and home works - Directed self- study - Problem based learning	- Written assessments such as multiple-choice questions and Quizzes - Multi-competency comprehensive assessments - Home works and assignments

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1- Implement particular wireless sensor network using network simulation with the best practice and techniques.	- Computer laboratory-based sessions - Team work (group learning) - The use of communication and information technology	- Written tests (Mid and final Terms) - Written assessments such as multiple-choice questions and Quizzes - Report/Project/Practical Lab Sessions - Home works and assignments
c2- Apply analysis tools of simulators to examine a specific issue related to wireless sensor networks in terms of the most common performance metrics.	- Computer laboratory-based sessions - Team work (group learning) - The use of communication and information technology	- Written tests (Mid and final Terms) - Written assessments such as multiple-choice questions and Quizzes - Report/Project/Practical Lab Sessions Home works and assignments

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(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1- Cope the modern modeling tools of wireless sensor networks.	- Seminar/project/presentation - Interactive class discussions - Directed self- study - Team work (group learning)	- Multi-competency comprehensive assessments - Coursework Activities - Home works and assignments - Presentations
d2- Present technical ideas and wireless sensor networks solutions based on the acquired knowledge.	- Seminar/project/presentation - Interactive class discussions - Directed self- study - Team work (group learning)	- Multi-competency comprehensive assessments - Coursework Activities - Home works and assignments - Presentations

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	Contact hours
1.	Introduction and Overview of Wireless Sensor Networks	a1, b2, c1, d1	• Background of Sensor Network Technology. • Basic Sensor Network Architectural Elements. • Brief Historical Survey of Sensor Networks. • Types of Wireless Sensor Networks. • Characteristics of Wireless Sensor Networks.	1	2

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2.	Applications of Wireless Sensor Networks	a1, b1, b2, d2	• Environmental Applications. • Agricultural Applications. • Industrial Applications. • Military Applications. • Medical Healthcare Applications. • Home and Office Buildings Applications. • Monitoring highways and traffic management Applications.	1	2
3.	Architecture of Wireless Sensor Networks	a1, b1, b2, c1, d1	• The basic architecture of a WSN node consists of four subsystems including power, sensing, processing, and communication subsystems. • Hardware Platforms.	2	4
4.	Physical Layer in Wireless Sensor Networks	a2, b1, c2, d2	• Basic Components. • Block diagram of Transceiver Radio Model. • Source Encoding. • Channel Encoding. • Modulation. • Signal Propagation.	1	2
5.	Medium Access Control Protocols for Wireless Sensor Networks	a1, a2, b2, c1, c2, d1	• Fundamentals of MAC Protocols. • Fixed Access, Random Access. • MAC Protocols for WSNs.	1	2
6.	Routing Protocols for Wireless Sensor Networks	a1, a2, b1, c1, c2, d1	• Introduction to Routing in WSNs. • Types of Routing Protocols: Resource-aware routing, Data-centric, Geographic Routing, Broadcast, Multicast.	1	2

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7.	Clustering in Wireless Sensor Networks	a2, b2, c1, c2, d1, d2	• Clustering goals. • Energy Consumption Model. • Types of clustering Protocols in WSNs.	2	4
8.	QoS management in Wireless Sensor Networks	a2, b2, c1, c2, d1, d2	• Basic functions, centralized solution. • Topology control. • Time Synchronization in WSNs.	2	4
9.	Localization in Wireless Sensor Networks	a2, b2, c1, c2, d1, d2	• Characteristics of localization in WSNs. • Localization techniques: Ranging, Range-Based, Range-Free, Event-Driven.	1	2
10.	Security in Wireless Sensor Networks	a1, a2, b2, c1, c2, d1, d2	• Fundamentals of Network Security. • Challenges of Security in Wireless Sensor Networks. • Security Attacks in Sensor Networks. • Protocols and Mechanisms for Security.	2	4
Number of Weeks /and Units Per Semester				14	28

B - Practical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**Contact hours**	**Learning Outcomes**
1.	Characteristics and types of wireless sensor networks.	1	2	a1, b1, b2, d2
2.	Applications of Wireless Sensor Networks.	1	2	a1, b1, b2, c1, d1
3.	Architecture of Wireless Sensor Networks.	1	2	a2, b1, c2, d2

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4.	Hardware Platforms of Wireless Sensor Networks.	1	2	a1, b1, b2, d2
5.	Block diagram of Transceiver Radio Model.	1	2	a2, b1, c2, d2
6.	MAC Protocols for Wireless Sensor Networks.	1	2	a1, a2, b2, c1, c2, d1
7.	Routing Protocols for Wireless Sensor Networks.	1	2	a1, a2, b1, c1, c2, d1
8.	Types of clustering Protocols in Wireless Sensor Networks.	2	4	a2, b2, c1, c2, d1, d2
9.	Time Synchronization in Wireless Sensor Networks.	1	1	a2, b2, c1, c2, d1, d2
10.	Localization techniques in Wireless Sensor Networks.	2	4	a2, b2, c1, c2, d1, d2
11.	Protocols and Mechanisms for Security WSNs.	1	2	a1, a2, b2, c1, c2, d1, d2
12.	Final Project + Presentation +Word document report.	2	4	a1, a2, b1, b2, c1, c2, d1, d2
Number of Weeks /and Units Per Semester		**15**	**30**	

V. Teaching strategies of the course:

- Active lectures
- Seminar/project/presentation
- Interactive class discussions
- Exercises and home works
- Computer laboratory-based sessions
- Directed self- study
- Problem based learning
- Team work (group learning)
- The use of communication and information technology

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VI.	Reports:			
No	**Assignments**	**Aligned CILOs (symbols)**	**Week Due**	**Mark**
1.	Searching in the Internet for types and applications of WSNs and submitting a written report.	a1, b1, b2, c1, d1, d2	3rd	3
2.	Preparation and submission of presentation on basic architecture of a WSN node.	a2, b1, c2, d2	6th	3
3.	Searching in the Internet for types of clustering protocols in WSNs and submitting a written report.	a2, b2, c1, c2, d1, d2	9th	4.5
4.	Preparation and submission of presentation on Localization techniques in WSNs.	a2, b2, c1, c2, d1, d2	12th	4.5
	Total			**15**

VII.	Schedule of Assessment Tasks for Students During the Semester:				
No.	**Assessment Method**	**Week Due**	**Mark**	**Proportion of Final Assessment**	**Aligned Course Learning Outcomes**
1.	Exercises & Homework & Quizzes	Weekly	15	10%	a1, a2, b1, b2, c1, c2, d1, d2
2.	Final Project + Presentation	15th	15	10%	a1, a2, b1, b2, c1, c2, d1, d2
3.	Reports	3rd, 6th, 9th, 12th	15	10%	a1, a2, b1, b2, c1, c2, d1, d2
4.	Midterm Exam	8th	30	20%	a1, a2, b1, b2, c1, c2, d1, d2
5.	Final Exam	16th	75	50%	a1, a2, b1, b2, c1, c2, d1, d2
	Total		**150**	**100%**	

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VIII.   Learning Resources:

- *Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).*

1- Required Textbook(s) (maximum two).

1. Kazem Sohraby, Daniel Minoli, Taieb Znati, 2007, Wireless Sensor Networks: Technology, Protocols, and Applications, 1st Edition, Published by John Wiley & Sons, Inc., Hoboken, New Jersey.
2. Waltenegus Dargie, Christian Poellabauer, 2010, Fundamentals of Wireless Sensor Networks: Theory and Practice, 1st Edition, A John Wiley and Sons, Ltd.

2- Essential References.

1. H. Karl and A. Willig, 2005, Protocols and Architectures for Wireless Sensor Networks, 1st Edition, Wiley Publishers.
2. Ibrahiem M. El Emary, S. Ramakrishnan, 2013, Wireless Sensor Networks: From Theory to Applications, 2nd Edition, CRC Press.
3. Mohammad Matin, 2012Wireless Sensor Networks - Technology and Protocols, 1st Edition, Publisher: InTech.
4. M. Law and W. David Kelton, 2008, Simulation Modelling and analysis, McGraw Hill, New York.

3- Electronic Materials and Web Sites *etc*.

1. https://en.wikipedia.org/wiki/Wireless_sensor_network
2. https://www.youtube.com/watch?v=QadXmuwIFb8&list=PLGqT9Et7IDDFvmd2WRXg7eh vah2UF8ihA
3. https://www.youtube.com/watch?v=ycaz99NogS4&list=PLSvfr6gMyxinv_WR0qZr-Cwr4YzRopLAd
4. https://www.youtube.com/watch?v=N03Gh6GvEw4&list=PLV8vIYTIdSnaoFjclogMhXiBFr HSL2Ar1
5. https://www.youtube.com/watch?v=HjAxGPd0Oto&list=PLrjkTql3jnm9eOTw714mEPWES JapEixRe
6. https://www.youtube.com/watch?v=7h5Wwk_mheg
7. https://www.youtube.com/watch?v=cs31tN76gaE

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	IX.Course Policies:
1.	**Class Attendance:** - The students should have more than 75% of attendance according to rules and regulations of the faculty.
2.	**Tardy:** - The students should respect the timing of attending the lectures. They should attend within 15 minutes from starting of the lecture.
3.	**Exam Attendance/Punctuality:** - The student should attend the exam on time. The punctuality should be implemented according to rules and regulations of the faculty for mid-term exam and final exam.
4.	**Assignments & Projects:** - The assignment is given to the students after each chapter; the student has to submit all the assignments for checking on time.
5.	**Cheating:** - If any cheating occurred during the examination, the student is not allowed to continue and he has to face the examination committee for enquires.
6.	**Plagiarism:** - If one student attends the exam on another behalf; he will be dismissed from the faculty according to the policy, rules and regulations of the university.
7.	**Other policies:** - All the teaching materials should be kept out the examination hall and mobile phones are not allowed. - Mutual respect should be maintained between the student and his teacher and also among students. Failing in keeping this respect is subject to the policy, rules and regulations of the university.

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Reviewed By	**Vice Dean for Academic Affairs and Post Graduate Studies: Asst. Prof. Dr. Tarek A. Barakat**
	President of Quality Assurance Unit: Assoc. Prof. Dr. Mohammed Algorafi
	Name of Reviewer from the Department: Asst. Prof. Dr.Mohammed Al-Suraby
	Deputy Rector for Academic Affairs Asst. Prof. Dr. Ibrahim AlMutaa
	Assoc. Prof. Dr. Ahmed Mujahed
	Asst. Prof. Dr. Munasar Alsubri

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Template for Course Plan of Wireless Sensor Networks

I. Information about Faculty Member Responsible for the Course:

Name of Faculty Member	Dr. Yahya Al-Naggar	Office Hours					
Location & Telephone No.	Sana'a 777389333	SAT	SUN	MON	TUE	WED	THU
E-mail	dr.yahya.alnaggar@gmail.com						

II. Course Identification and General Information:

1.	Course Title:	Wireless Sensor Networks				
2.	Course Number & Code:	CNE448				
3.	Credit hours:	C.H				Total
		Th.	Tu.	Pr.	Tr.	
		2	-	2	-	3
4.	Study level/year at which this course is offered:	Fifth Year/ First Semester				
5.	Pre –requisite (if any):	Communication Networks				
6.	Co –requisite (if any):	Mobile Communications (CNE435)				
7.	Program (s) in which the course is offered	Communication Engineering and Networks				
8.	Language of teaching the course:	Arabic & English				
9.	System of Study:	Regular				
10.	Mode of delivery:	Semesters				
11.	Location of teaching the course:	Inside the University, Faculty of Engineering				

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III. Course Description:

The course is designed to cover the main concepts of wireless sensor networks including architecture, types, hardware platforms, applications, requirements, protocols and standards. The course also covers the design issues of wireless sensor networks design and planning such as frequency, transmission rate, distance, power, and security. The focus will be on physical layer techniques, medium access control, routing, auto-configuration, clustering, topology management, quality of service (QoS) reliable transport, energy conservation, mobility management, localization and service discovery. Also, the course provides fundamental concepts modeling and simulation of wireless sensor network, as well as practical application case studies such as health, environmental monitoring and smart home.

IV. Intended learning outcomes (ILOs) of the course:

- Brief summary of the knowledge or skill the course is intended to develop:

1. Explain the main concepts of wireless sensor networks including types architecture, applications, requirements, protocols and standards.
2. Recognize the main issues of wireless sensor networks design and planning such as frequency, transmission rate, distance, power, and security.
3. Compare between wireless sensor networks structure, applications, and techniques.
4. Analyze requirements and propose the most appropriate wireless sensor technique to solve a particular networking problem in enterprise network.
5. Implement a particular wireless sensor network using network simulation with the best practice and techniques.
6. Apply analysis tools of simulators to examine a specific issue related to wireless sensor networks in terms of the most common performance metrics.
7. Cope the modern modeling tools of wireless sensor networks.
8. Present technical ideas and wireless sensor networks solutions based on the acquired knowledge.

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			V. Course Content:		

		A – Theoretical Aspect:			
Order	Units/Topics List	Sub Topics List	Number of Weeks	Contact hours	
1.	Introduction and Overview of Wireless Sensor Networks	• Background of Sensor Network Technology. • Basic Sensor Network Architectural Elements. • Brief Historical Survey of Sensor Networks. • Types of Wireless Sensor Networks. • Characteristics of Wireless Sensor Networks.	1st	2	
2.	Applications of Wireless Sensor Networks	• Environmental Applications. • Agricultural Applications. • Industrial Applications. • Military Applications. • Medical Healthcare Applications. • Home and Office Buildings Applications. • Monitoring highways and traffic management Applications.	2nd	2	
3.	Architecture of Wireless Sensor Networks	• The basic architecture of a WSN node consists of four subsystems including power, sensing, processing, and communication subsystems. • Hardware Platforms.	3rd & 4th	4	
4.	Physical Layer in Wireless Sensor Networks	• Basic Components. • Block diagram of Transceiver Radio Model. • Source Encoding. • Channel Encoding. • Modulation. • Signal Propagation.	5th	2	

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5.	Medium Access Control Protocols for Wireless Sensor Networks	• Fundamentals of MAC Protocols. • Fixed Access, Random Access. • MAC Protocols for WSNs.	6th	2
6.	Routing Protocols for Wireless Sensor Networks	• Introduction to Routing in WSNs. • Types of Routing Protocols: Resource-aware routing, Data-centric, Geographic Routing, Broadcast, Multicast.	7th	2
7.	Midterm Exam	• All previous topics	8th	2
8.	Clustering in Wireless Sensor Networks	• Clustering goals. • Energy Consumption Model. • Types of clustering Protocols in WSNs.	9th & 10th	4
9.	QoS management in Wireless Sensor Networks	• Basic functions, centralized solution. • Topology control. • Time Synchronization in WSNs.	11th & 12th	4
10.	Localization in Wireless Sensor Networks	• Characteristics of localization in WSNs. • Localization techniques: Ranging, Range-Based, Range-Free, Event-Driven.	13th	2
11.	Security in Wireless Sensor Networks	• Fundamentals of Network Security. • Challenges of Security in Wireless Sensor Networks. • Security Attacks in Sensor Networks. • Protocols and Mechanisms for Security.	14th & 15th	4
12.	Final Exam	• All Topics	16th	2
Number of Weeks /and Units Per Semester			**16**	**32**

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B - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours
1.	Characteristics and types of wireless sensor networks.	1st	2
2.	Applications of Wireless Sensor Networks.	2nd	2
3.	Architecture of Wireless Sensor Networks.	3rd	2
4.	Hardware Platforms of Wireless Sensor Networks.	4th	2
5.	Block diagram of Transceiver Radio Model.	5th	2
6.	MAC Protocols for Wireless Sensor Networks.	6th	2
7.	Routing Protocols for Wireless Sensor Networks.	7th	2
8.	Types of clustering Protocols in Wireless Sensor Networks.	8th ,9th	4
9.	Time Synchronization in Wireless Sensor Networks.	10th	1
10.	Localization techniques in Wireless Sensor Networks.	11th ,12th	4
11.	Protocols and Mechanisms for Security WSNs.	13th	2
12.	Final Project + Presentation +Word document report.	14th ,15th	4
Number of Weeks /and Units Per Semester		**15**	**30**

VI. Teaching strategies of the course:

- Active lectures
- Seminar/project/presentation
- Interactive class discussions
- Exercises and home works
- Computer laboratory-based sessions
- Directed self- study
- Problem based learning
- Team work (group learning)
- The use of communication and information technology

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VII.	Reports:			
No	**Assignments**	**Aligned CILOs (symbols)**	**Week Due**	**Mark**
1.	Searching in the Internet for types and applications of WSNs and submitting a written report.	a1, b1, b2, c1, d1, d2	3rd	3
2.	Preparation and submission of presentation on basic architecture of a WSN node.	a2, b1, c2, d2	6th	3
3.	Searching in the Internet for types of clustering protocols in WSNs and submitting a written report.	a2, b2, c1, c2, d1, d2	9th	4.5
4.	Preparation and submission of presentation on Localization techniques in WSNs.	a2, b2, c1, c2, d1, d2	12th	4.5
	Total			**15**

VIII.	Schedule of Assessment Tasks for Students During the Semester:			
No.	**Assessment Method**	**Week Due**	**Mark**	**Proportion of Final Assessment**
1.	Exercises & Homework & Quizzes	Weekly	15	10%
2.	Final Project + Presentation	15th	15	10%
3.	Reports	3rd, 6th, 9th, 12th	15	10%
4.	Midterm Exam	8th	30	20%
5.	Final Exam	16th	75	50%
	Total		**150**	**100%**

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IX. Learning Resources:

- *Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).*

1- Required Textbook(s) (maximum two).

1. Kazem Sohraby, Daniel Minoli, Taieb Znati, 2007, Wireless Sensor Networks: Technology, Protocols, and Applications, 1st Edition, Published by John Wiley & Sons, Inc., Hoboken, New Jersey.
2. Waltenegus Dargie, Christian Poellabauer, 2010, Fundamentals of Wireless Sensor Networks: Theory and Practice, 1st Edition, A John Wiley and Sons, Ltd.

2- Essential References.

1. H. Karl and A. Willig, 2005, Protocols and Architectures for Wireless Sensor Networks, 1st Edition, Wiley Publishers.
2. Ibrahiem M. El Emary, S. Ramakrishnan, 2013, Wireless Sensor Networks: From Theory to Applications, 2nd Edition, CRC Press.
3. Mohammad Matin, 2012Wireless Sensor Networks - Technology and Protocols, 1st Edition, Publisher: InTech.
4. M. Law and W. David Kelton, 2008, Simulation Modelling and analysis, McGraw Hill, New York.

3- Electronic Materials and Web Sites *etc*.

1. https://en.wikipedia.org/wiki/Wireless_sensor_network
2. https://www.youtube.com/watch?v=QadXmuwIFb8&list=PLGqT9Et7IDDFvmd2WRXg7ehvah2UF8ihA
3. https://www.youtube.com/watch?v=ycaz99NogS4&list=PLSvfr6gMyxinv_WR0qZr-Cwr4YzRopLAd
4. https://www.youtube.com/watch?v=N03Gh6GvEw4&list=PLV8vIYTIdSnaoFjclogMhXiBFrHSL2Ar1
5. https://www.youtube.com/watch?v=HjAxGPd0Oto&list=PLrjkTql3jnm9eOTw714mEPWESJapEixRe
6. https://www.youtube.com/watch?v=7h5Wwk_mheg
7. https://www.youtube.com/watch?v=cs31tN76gaE

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	X. Course Policies:
1.	**Class Attendance:** - The students should have more than 75% of attendance according to rules and regulations of the faculty.
2.	**Tardy:** - The students should respect the timing of attending the lectures. They should attend within 15 minutes from starting of the lecture.
3.	**Exam Attendance/Punctuality:** - The student should attend the exam on time. The punctuality should be implemented according to rules and regulations of the faculty for mid-term exam and final exam.
4.	**Assignments & Projects:** - The assignment is given to the students after each chapter; the student has to submit all the assignments for checking on time.
5.	**Cheating:** - If any cheating occurred during the examination, the student is not allowed to continue and he has to face the examination committee for enquires.
6.	**Plagiarism:** - If one student attends the exam on another behalf; he will be dismissed from the faculty according to the policy, rules and regulations of the university.
7.	**Other policies:** - All the teaching materials should be kept out the examination hall and mobile phones are not allowed. - Mutual respect should be maintained between the student and his teacher and also among students. Failing in keeping this respect is subject to the policy, rules and regulations of the university.

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