



Engineering

Course Specifications										
Program(s) on which this course is given:			e is _{El}	Electronics & Electrical Communications Engineering						
Major or Minor element of programs:				Major						
Department offering the program:				Electronics and Electrical Communications						
Department offering the course:				Electronics and Electrical Communications						
Academic year / Level:			Fo	Fourth						
Date of original/modified specification			tion	2003						
approval:				2003						
Semester of course offering:				Second						
A- Basic Inform	mation									
1.a. Title:	Satellite Communica		inicatior	tions 1.		o. Code:		ELC 456		
2. Units/Credit hours per week:	2.a. Lectures 2		2.b	o. Tutorial	2 (in lecture	cluded in s)	2.c. Practical	0	2.d. Total	4
B- Professional Information										
1. Overall Aims Course:	of the	of the Introduce the main categories of satellites (GEO, MEO and LEO). Study the performance (signal to interference ratio) of geostationary satellites (GEO). Study the performance (signal to interference ratio , throughput and delay) of low earth orbit satellites (LEO).						mance mance)).		
		a) Knowledge and Understanding								
		 Identify the differences among GEO, LEO and MEO satellites (1.7) Identify interference and its impact on performance of GEO and LEO satellite systems (1.1) Introduce the main design parameters in GEO and LEO systems (1.7) Define the differences between Multiple access techniques (1.7) 								
		b) Intel	lectual S	Skills						
2. Intended Learning Outcomes of Course (ILOs):		 Derive the SIR for both systems.(3.1) Analyze the impact of all system parameters on the SIR (3.4) Search for different methods that improve the system performance (3.4) Derive the SNR for GEO satellites (3.1) Prepare an oral presentation (3.8) 								
		c) Professional and Practical Skills								
		 Evaluate the link budget for GEO satellite systems (2.1, 2.4) Choose the best satellite system for a certain application by understanding the advantages and disadvantages of each one. (2.4) Present a LEO system in written and oral form (2.8) 								
		d) General and Transferable Skills								
		1. Work in teams (4.7)								
		2. Present work orally and in writing (4.7)								
3. Contents										
Торіс				Total hour	'S	Lectures		Tutoria	/ Practical	

Space link		8	8	
Satellite access		8	8	
Interference (GEO)		8	8	
Introduction to mot communications	oile satellite	2	2	
Preliminary issues in the d	lesign of global	6	6	
Special issues in LEO satellit	e systems	4	4	
Performance evaluation of an	alog system	6	6	
Performance of integrated system	voice and data	2	2	
Employing spread slotted A satellite system	Aloha in a LEO	6	6	
Modified power control scher	me	2	2	
Transmit permission control s	scheme	2	2	
Average delay performance of transmit permission control		2	2	
4. Teaching and Learning Methods	Lectures (Y	()	Practical Training/ Laboratory (N)	Seminar/Workshop (Y)
	Class Activit	ty (N)	Case Study (N)	Projects (N)
	E-learning (N	N)	Assignments /Homework (Y)	Other:
5 Student Assessment Meth	ods			
5. Student Assessment Met	lous			
5.a. Method	1005		To assess (with reference	to the ILOs)
5.a. Method - Presentation and reports	5 5		Fo assess (with reference b2, d1, d2	to the ILOs)
5.a. Method - Presentation and reports - Mid-term and final examples	n n		To assess (with reference b2, d1, d2 a1, b1, c1	to the ILOs)
5.a. Method - Presentation and reports - Mid-term and final exar 5.b. Assessment Schedule	n n		To assess (with reference b2, d1, d2 a1, b1, c1 Week	to the ILOs)
5.a. Method - Presentation and reports - Mid-term and final exar 5.b. Assessment Schedule - Reports and presentation	n n ns delivered at		Fo assess (with reference b2, d1, d2 a1, b1, c1 Week 12	to the ILOs)
5.a. Method - Presentation and reports - Mid-term and final exar 5.b. Assessment Schedule - Reports and presentation - Final Exam	n ns delivered at		To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Examt 5.c. Weighting of Assessment 	ns delivered at		To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Examt 5.c. Weighting of Assessment Reports 	ns delivered at		To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Exam 5.c. Weighting of Assessment Reports Final-term Examination 	ns delivered at		To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15 19% 70%	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Exam 5.c. Weighting of Assessment Reports Final-term Examination Presentation 	ns delivered at		To assess (with reference b2, d1, d2 b1, c1 Week 12 15 19% 70% 5%	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Examt 5.c. Weighting of Assessment Reports Final-term Examination Presentation Oral 	ns delivered at		To assess (with reference b2, d1, d2 b1, b1, c1 Week 12 15 19% 70% 6% 4%	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Examt 5.c. Weighting of Assessment Reports Final-term Examination Presentation Oral Attendance 	ns delivered at		To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15 19% 70% 5% 4% 1%	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Examt 5.c. Weighting of Assessment Presentation Presentation Oral Attendance Total 	ns delivered at		To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15 19% 70% 5% 4% 1% 100 %	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Examt 5.c. Weighting of Assessment Final-term Examination Presentation Oral Attendance Totalt 6. List of References 	ns delivered at		To assess (with reference b2, d1, d2 b1, c1 Week 12 15 19% 70% 5% 4% 1% 100 %	to the ILOs)
 5. Student Assessment Vien 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Exam 5.c. Weighting of Assessment Final-term Examination Presentation Oral Attendance Total 6. List of References 6.a. Course Notes : A part of 	ns delivered at nts The course is avai	lable with the stude	To assess (with reference b2, d1, d2 b1, c1 Week 12 15 19% 70% 5% 4% 100 % ents in electronic form and	to the ILOs)
 5. Student Assessment Viet 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Examt 5.c. Weighting of Assessment Reports Final-term Examination Presentation Oral Attendance Total 6. List of References 6.a. Course Notes : A part of 6.b. Essential Books (Text B) 	ns delivered at nts f the course is avai ooks)	lable with the stude	To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15 19% 70% 5% 4% 100 % ents in electronic form and	to the ILOs)
 5. Student Assessment Vien 5.a. Method Presentation and reports Mid-term and final exar 5.b. Assessment Schedule Reports and presentation Final Exam 5.c. Weighting of Assessment Reports Final-term Examination Presentation Oral Attendance Total 6. List of References 6.a. Course Notes : A part of 6.b. Essential Books (Text B Dennis Roddy, "Sate 	ns delivered at nts t t t t t t t t t t t t t t t t t	lable with the stud	To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15 19% 70% 5% 4% 100 % ents in electronic form and ., McGraw-Hill internation	to the ILOs)
 5.a. Method Presentation and reports Mid-term and final exart 5.b. Assessment Schedule Reports and presentation Final Exam 5.c. Weighting of Assessment Final-term Examination Presentation Oral Attendance Total 6. List of References 6.a. Course Notes : A part of 6.b. Essential Books (Text B) Dennis Roddy, "Sate A. Jamalipour, "Low 	ns delivered at ns delivered at nts f the course is avai ooks) llite Communicati Earth Orbit Satell	lable with the stud ons", Third edition lites for Personal C	To assess (with reference b2, d1, d2 a1, b1, c1 Week 12 15 19% 70% 5% 4% 100 % ents in electronic form and , McGraw-Hill internation ommunication Networks",	to the ILOs)

6.d. Periodicals, Web Site	es, etc
7. Facilities Required for	or Teaching and Learning
White/black board – Data	a show
Course Coordinator:	Prof. Dr. Hebat-Allah M. Mourad
Head of Department:	Prof. Dr. Mahmoud T. Al-Hadidi
Date: 2010-2011	