Ministry of Higher Education
High Institute of Electronic Engineering
Ministerial Resolution 5053 - 12/10/2016
K 10, Bilbies – 10th of Ramadan

وزارة التعليم العالي
المعهد العالي للهندسة الإلكترونية
قرار وزاري 5053 – 2016/10/12
ك 10 طريق بلبيس العاشر من رمضان

Course Specification

1- Basic Information

Course Title	**Microcontrollers & Applications**	
Course Code	CSE 411	
Academic Year	2022-2023	
Coordinator	Dr. Essam Nabil Ahmed	
Teaching Staff	Dr. Essam Nabil Ahmed	
Level	Level (4)	
Semester	First Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	1
	Lab	1
Department offering the program	• Electronics and Communications Engineering, • Computers and Systems Engineering, • Communications and Computer Engineering	
Department offering the course	• Computers and Systems Engineering,	

2- Aim of the course

1. Develop a basic knowledge of programming the microcontroller with high efficiency and reliability using different embedded languages.
2. Having acquired a good knowledge of improving interfacing of the microcontroller with the outer media. In addition, to connect with the PC.
3. Encourage the student to analyze embedded devices and analyze the microcontroller different units and modules.
4. Assist the student to implement the experiments and projects using microcontroller related software and hardware components.

3- Course related program competencies

Level A – General	A.1 Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics. A.2 Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
Level B - Speciality	B.2 Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design. B.3 Design and implement elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools. B.4 Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation and evaluate its suitability for a specific application.
4- Course Contents	Difference between microprocessors and microcontrollers, General architecture of microcontrollers, Architecture of one of the available microcontrollers that will be used in this course, its assembly, Programming with either C or Basic, Input and output of data in this microcontroller, Timers, Counters, and Interrupts, Software and hardware applications will be assumed in each part. Dealing with A/D and D/A either internal or external, the student should build a complete project to control a simple process like controlling temperature and displaying it or controlling the speed of a motor and displaying it also. ***Laboratory:*** 01 Experimenting with the assembly language of the used microcontrollers, or the high-level language used with the simulator. 02 Experimenting with the assembly language of the used microcontrollers, or the high-level language used with the simulator. 03 Experimenting with the assembly language of the used microcontrollers, or the high-level language used with the simulator. 04 Experimenting with the assembly language of the used microcontrollers, or the high-level language used with the simulator. 05 Experiment on dealing with interrupts. 06 Experiment on dealing with interrupts. 07 Experiment on dealing with Timers, and Counters. 08 Experiment on dealing with Timers, and Counters.

	09 Doing a complete course project to use the microcontroller in controlling a physical variable like temperature or pressure and display that variable. The A/D, and D/A must be used in this project. 10 Doing a complete course project to use the microcontroller in controlling a Physical variable like temperature or pressure and display that variable. The A/D, and D/A must be used in this project. 11 Doing a complete course project to use the microcontroller in controlling a physical variable like temperature or pressure and display that variable. The A/D, and D/A must be used in this project.

# Topic	Lecture	Tutorial/Practical	No of hours
Difference between microprocessors and microcontrollers, General architecture of microcontrollers.	4	4	8
Architecture of one of the available microcontrollers that will be used in this course, its assembly, Programming with either C or Basic.	6	6	12
Input and output of data in this microcontroller.	6	6	12
Timers, Counters, and Interrupts, Software and hardware applications will be assumed in each part.	8	8	16
Dealing with A/D and D/A either internal or external, the student should build a complete project to control a simple process like controlling temperature and displaying it or controlling the speed of a motor and displaying it also.	4	4	8
Total sum	**28**	**28**	**56**

5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation 10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and tutorials. 4. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no . 8 - Quizz-2: Week no. 12 - Final – term examination: Week no. 16
c- Weighting of assessment	- Class tutorial and quizzes : 20 % - Mid-term examination: 20 % - Final – term examination: 60 % Total 100 %

10- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department.
b- Text books/ References	[1] Daniel Tobak, Kenneth J. Hintz, Microcontrollers: Architecture, Implementation and Programming, McGraw Hill, 1992. [2] Frederick M Cady "Microcontrollers and Microcomputers Principles of Software and Hardware Engineering", Prentice Hall, Jun 19, 2009. [3] F. E. V.-Perez, R. P.-Areny, Microcontrollers: Fundamentals and Applications with PIC, CRC Press, Feb., 2009. [4] Danny Cansey, Muhammed Ali Mazidi, PIC Microcontrollers and Embedded Systems Using Assembly and C, Pearson Prentice Hall, 2007. [5] Lucio Di Jasio, Tim Wilmshurst, Dogan Ibrahim, PIC Microcontrollers, Know it all, Elsevier Inc, 2008.
c- Periodicals, Web sites .....etc	https://www.microchip.com/design-centers/microcontrollers

11-Course ccontents – Course related program competencies					
	Level A		Level B		
	A.1	A.2	B.2	B.3	B.4
Difference between microprocessors and microcontrollers, General architecture of microcontrollers.	√		√		
Architecture of one of the available microcontrollers that will be used in this course, its assembly, Programming with either C or Basic.		√		√	√
Input and output of data in this microcontroller.		√		√	√
Timers, Counters, and Interrupts, Software and hardware applications will be assumed in each part.		√		√	√
Dealing with A/D and D/A either internal or external, the student should build a complete project to control a simple process like controlling temperature and displaying it or controlling the speed of a motor and displaying it also.	√	√	√	√	√

12-Teaching and learning methods - Course related program competencies					
	Level A		Level B		
	A.1	A.2	B.2	B.3	B.4

Lecture (online/in class)	√		√		
Discussion	√	√	√	√	√
Tutorial	√		√		
Problem solving	√		√		
Brain storming	√	√	√	√	√
Projects		√		√	√
Self-learning	√	√	√	√	√
Research and Reporting	√		√		√
Computer Simulation		√		√	
Teamwork	√	√	√	√	√

13- Assessment methods - Course related program competencies					
Assessment methods	**Course related program competencies**				
	Level A		**Level B**		
	A.1	**A.2**	**B.2**	**B.3**	**B.4**
1. Mid Term Examination (written/ online)	√		√		
2. Practical Examination		√		√	√
3. Oral Examination	√	√	√	√	√
4. Formative (quizzes- presentation -reports)	√		√		
5. Final Term Examination (written	√		√		

Authorized from board of the department at 1/9/2022

Course coordinator:

Dr. Essam Nabil Ahmed

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Course Specification

1- Basic Information

Course Title	**Digital Control Systems**	
Course Code	CSE 412	
Academic Year	2022-2023	
Coordinator	Assoc. Prof. Walid Salah Eldeen Abdellatif	
Teaching Staff	Assoc. Prof. Walid Salah Eldeen Abdellatif	
Level	Level (4)	
Semester	First Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	1
	Lab	1
Department offering the program	• Electronics and Communications Engineering, • Computers and Systems Engineering, • Communications and Computer Engineering	
Department offering the course	Computers and Systems Engineering	

2- Aim of the course

1. Develop a basic knowledge of real time systems; Concepts of computer control; direct digital control algorithms and their implementation.
2. Develop a basic knowledge of programming logic controller (PLC) in automatic control systems.
3. Discuss the different programming methods of PLC.
4. Encourage the student to understand the main concept of PLC.
5. Assist the student to implement the experiments using software (PLC) and hardware components.

3- Course related program competencies

Level A – General	A.1 Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics. A.3 Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
Level B - Specialty	B.2 Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design. B.3 Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools. B.4 Estimate and measure the performance of an electrical / electronic/digital system and circuit under specific input excitation and evaluate its suitability for a specific application.
4- Course Contents	Introduction to real time systems; Concepts of computer control; Direct digital control algorithms and their implementation; Advantages of using programmable logic controllers (PLCs) in industrial automation; Basic components of a PLC; Programming of PLCs by ladder logic; PLC program development for control applications; interlocking and sequential logic.

# Topic	**Lecture**	**Tutorial/Practical**	**No of hours**
Introduction to real time systems; Concepts of computer control; Direct digital control algorithms and their implementation	4	4	8
Advantages of using programmable logic controllers (PLCs) in industrial automation	6	6	12
Basic components of a PLC; Programming of PLCs by ladder ;logic	8	8	16
PLC program development for control applications	6	6	12
Interlocking and sequential .logic	4	4	8

Total sum	28	28	56
5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation 10. Teamwork		
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice		
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and tutorials. 4. Assign a teaching assistance to follow up their performance		
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.		
9- Students assessment			
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)		
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no . 8 - Quizz-2: Week no. 12 - Final – term examination: Week no. 16		
c- Weighting of assessment	- Class tutorial and quizzes : 20 % - Mid-term examination: 20 % - Final – term examination: 60 % Total 100 %		

10- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department.
b- Text books/ References	[1] Hugh Jack, "Automating Manufacturing Systems with PLCs", Version 5.0, May 4, 2007. [2] Stuart and Peter Norving , Artificial Intelligense : a modern approach Russel , Prentice Hall , 2nd Ed.,2003..
c- Periodicals, Web sites .....etc	"DVP-PLC Application Examples. www.delta.com.tw/ia

11-Course contents – Course related program competencies

	Level A			Level B			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
Introduction to real time systems; Concepts of computer control; Direct digital control algorithms and their implementation	√			√			
Advantages of using programmable logic controllers (PLCs) in industrial automation	√	√		√		√	
Basic components of a PLC; Programming of PLCs by ladder logic;		√				√	
PLC program development for control applications	√	√		√		√	
Interlocking and sequential logic.		√				√	

12-Teaching and learning methods - Course related program competencies

	Level A			Level B			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
Lecture (online/in class)	√						
Discussion	√	√		√	√	√	
Tutorial	√	√		√	√		
Problem solving				√	√		
Brain storming				√	√	√	

Projects				√	√	√	
Self-learning	√						
Research and Reporting						√	
Computer Simulation						√	
Teamwork	√						

13- Assessment methods - Course related program competencies							
Assessment methods	**Course related program comptencies**						
	Level A			**Level B**			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
1. Mid Term Examination (written/ online)	√	√		√	√		
2. Practical Examination				√			
3. Oral Examination					√		
4. Formative (quizzes- presentation -reports)	√	√		√	√		
5. Final Term Examination (written	√	√		√	√		

Authorized from board of the department at 1/9/2022
Course coordinator:

Dr. Walid Salah Eldeen Abdellatif

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Course Specification

1- Basic Information

Course Title	**Advanced control systems**	
Course Code	CSE 413	
Academic Year	2022-2023	
Coordinator	Dr. Bassam A. Hemad	
Teaching Staff	Dr. Bassam A. Hemad	
Level	Level (4)	
Semester	1st	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	2
	Lab	1
Department offering the program	• Electronics and Communications Engineering, • Computers and Systems Engineering, • Communications and Computer Engineering	
Department offering the course	Electronics Engineering and Electrical Communication	

2- Aim of the course

1. To provide students with the State variable canonical forms of continuous-time control systems.
2. Having acquired a good knowledge of improving solutions of the time – invariant state equations
3. Having acquired a good knowledge o, controllability, observeability, Lyapunov stability of stat-space representation
4. To provide students with quadratic optimal regulator systems.

3- Course related program competencies

Level A – General	A.1 Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics. A.2 Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions A.3 Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development A.4 Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.
Level B - Speciality	B.2 Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design. B.3 Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools. B.4 Estimate and measure the performance of an electrical / electronic/digital system and circuit under specific input excitation and evaluate its suitability for a specific application. B.5 Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems, and services.
4- Course Contents	State variable canonical forms of continuous-time control systems, solution of the time – invariant state equations , controllability , observeability , Lyapunov stability of state – state models , pole placement , design of Servo systems , state observers , design of regulator systems with observers , Quadratic optimal regulator systems .

# Topic	**Lecture**	**Tutorial/Practical**	**No of hours**
State variable canonical forms of continuous-time control systems,	4	6	10
solution of the time – invariant state equations	6	9	15
controllability , observeability , Lyapunov stability of state –	8	12	20

state models ,			
pole placement , design of Servo systems , state observers ,	6	9	15
design of regulator systems with observers , Quadratic optimal regulator systems	4	6	10
Total sum	28	42	70

5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation 10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and tutorials. 4. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no . 8

	- Quizz-2: Week no. 12 - Final – term examination: Week no. 16
c- Weighting of assessment	- Class tutorial and quizzes : % 20 - Mid-term examination: % 20 - Final – term examination: % 60 Total 100 %
10- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a slides.
b- Text books/ References	▪ R.C Dorf and R.H. Bishop , modern control systems , Pearson 12th Ed 2011 ▪ W. Bolton , programmable logic controllers , 4th Ed 2006 .
c- Periodicals, Web sites .....etc	Web Sites related to Microcontrollers & Applications as: http://www.qariya.info/vb/forumdisplay https://www.microchip.com/design-centers/microcontrollers

11-Course contents – Course related program competencies

	Level A				Level B			
	A.1	**A.2**	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
State variable canonical forms of continuous-time control systems,	√	√						
solution of the time – invariant state equations	√	√	√					
controllability , observeability , Lyapunov stability of state – state models ,		√	√	√	√	√	√	√
pole placement , design of Servo systems , state observers ,	√		√	√			√	√
design of regulator systems with observers , Quadratic optimal regulator systems				√	√	√	√	√

12-Teaching and learning methods - Course related program competencies

	Level A	Level B

	A.1	A.2	A.3	A.4	B.2	B.3	B.4	B.5
Lecture (online/in class)								
Discussion	√							
Tutorial	√	√	√	√	√	√	√	√
Problem solving	√	√	√	√	√	√		
Brain storming		√		√	√	√		
Projects		√			√	√	√	√
Self-learning		√			√	√	√	√
Research and Reporting								√
Computer Simulation							√	
Teamwork							√	√

13- Assessment methods - Course related program competencies								
Assessment methods	**Course related program comptencies**							
	Level A				**Level B**			
	A.1	**A.2**	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
1. Mid Term Examination (written/ online)	√	√	√	√	√	√		
2. Practical Examination								
3. Oral Examination								
4. Formative (quizzes- presentation -reports)	√	√	√	√	√	√		
5. Final Term Examination (written	√	√	√	√	√	√		

Authorized from board of the department at 1/9/2022
Course coordinator:

Dr Bassam A. Hemad

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Course Specification

1- Basic Information

Course Title	**Software Engineering**	
Course Code	CSE 414	
Academic Year	2022-2023	
Coordinator	Dr. Elhossiny Ibrahim Elhossiny	
Teaching Staff	Dr. Elhossiny Ibrahim Elhossiny	
Level	Level (4)	
Semester	First Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	1
	Lab	1
Department offering the program	• Computers and Systems Engineering,	
Department offering the course		

2- Aim of the course

1. Use current advanced techniques, skills, and tools necessary for computing practices to specify, design, and implement computer-based systems.
2. Design and implement a system to meet the required needs within realistic constraints.
3. Demonstrate skills of software documentation, and quality assurance and evaluation as part of software development.
4. Communicate and work effectively within multi-disciplinary teams.
5. Display professional and ethical responsibilities and engage in self- and life-long learning.
6. Manage projects related to computer systems in diverse fields of applications.

3- Course related program competencies

Level A – General	**A9.** Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations. **A10.** Acquire and apply new knowledge; and practice self, lifelong, and other learning strategies.

Level B - Speciality	**B2.** Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design. **B3.** Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools. **B5.** Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services
4- Course Contents	The principles of Software Engineering, SDLC SW life cycle model, selection of life cycle model, Software Processes, Software Requirements management, object oriented design, software system verification, validation, and software Maintenance, the basics of Software Management and quality assurance, documentations and reports, system reset, user accounts, flow of events.

# Topic	**Lecture**	**Tutorial/Practical**	**No of hours**
The principles of Software Engineering, SDLC SW life cycle model, selection of life cycle model	4	4	8
Software Processes, Software Requirements management	6	6	12
Object oriented design, software system verification, validation and software Maintenance	6	6	12
The basics of Software Management and quality assurance	4	4	8
Documentations and reports, system reset, user accounts, flow of events.	8	8	16
Total sum	**28**	**28**	**56**
5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting		

	9. Computer Simulation 10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. Provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and tutorials. 4. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no. 8 - Quizz-2: Week no. 12 - Final – term examination: Week no. 16
c- Weighting of assessment	- Class tutorial and quizzes : % - Mid-term examination: % - Final – term examination: % Total 100 %
10- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a book
b- Text books/ References	[1] Ian Sommerville, *Software Engineering*, 10th Edition, Pearson Education Limited, 2016. [2] Rod Stephens, *Beginning Software Engineering*, John Wiley & Sons, Inc, 2015.

c- Periodicals, Web sites .....etc	[1] https://nptel.ac.in/courses/106/105/106105087/ [2] https://www.coursera.org/courses?query=software%20engineering [3] https://www.tutorialspoint.com/software_engineering/index.htm

11-Course ccontents – Course related program competencies					
	Level A		**Level B**		
	A.9	**A.10**	**B2**	**B.3**	**B.5**
The principles of Software Engineering, SDLC SW life cycle model, selection of life cycle model	√			√	
Software Processes, Software Requirements management	√	√	√		√
Object oriented design, software system verification, validation and software Maintenance	√	√	√	√	√
The basics of Software Management and quality assurance	√	√	√		√
Documentations and reports, system reset, user accounts, flow of events.	√	√		√	√

12-Teaching and learning methods - Course related program competencies					
	Level A		**Level B**		
	A.9	**A.10**	**B2**	**B.3**	**B.5**
Lecture (online/in class)	√		√		
Discussion	√	√	√	√	√
Tutorial	√		√		
Problem solving	√		√		
Brain storming	√	√	√	√	√
Projects		√		√	√
Self-learning	√	√	√	√	√
Research and Reporting	√		√		√
Computer Simulation		√		√	
Teamwork	√	√	√	√	√

13- Assessment methods - Course related program competencies					
Assessment methods	**Course related program competencies**				
	Level A		**Level B**		
	A.9	**A.10**	**B2**	**B.3**	**B.5**
1. Mid Term Examination (written/ online)	√		√		
2. Practical Examination		√	√	√	√
3. Oral Examination	√	√	√	√	√
4. Formative (quizzes- presentation -reports)	√		√		
5. Final Term Examination (written)	√		√		

Authorized from board of the department at 1/9/2022

Course coordinator:

Dr. Elhossiny Ibrahim Elhossiny

Ministry of Higher Education
High Institute of Electronic Engineering
Ministerial Resolution 5053 - 12/10/2016
K 10, Bilbies – 10th of Ramadan

وزارة التعليم العالي
المعهد العالي للهندسة الإلكترونية
قرار وزاري 5053 – 2016/10/12
ك 10 طريق بلبيس العاشر من رمضان

Course Specification

1- Basic Information

Course Title	**Parallel and Distributed Computer Systems**	
Course Code	CSE 415	
Academic Year	2022-2023	
Coordinator	Dr. Nader Mohamed Abd Elmohsen	
Teaching Staff	Dr. Nader Mohamed Abd Elmohsen	
Level	Level (4)	
Semester	First Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	-
	Lab	2
Department offering the program	• Electronics and Communications Engineering, • Computers and Systems Engineering, • Communications and Computer Engineering	
Department offering the course	Computers and Systems Engineering	

2- Aim of the course

1. State different types of parallel and distributed computers.
2. Describe different processors structures and data flow mechanisms
3. Explain the concepts cluster programming, shared memory programming, message passing, client/server computing, performance evaluation, case studies.

3- Course related program competencies

Level A – General	A.6 Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements. A.9 Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations. A.10 Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

Level B - Speciality	B.3 Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools. B.4 Estimate and measure the performance of an electrical / electronic/digital system and circuit under specific input excitation and evaluate its suitability for a specific application. B.5 Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems, and services.
4- Course Contents	Distributed systems, parallel processors architecutes, vector processors, compilers, loosly and tighly coupled processors, data flow machines, data pallelism, interconnecting networks, parallel programming, cluster programming, shared memory programming, message passing, client/server computing, performance evaluation, case studies.

# Topic	**Lecture**	**Tutorial/Practical**	**No of hours**
Distributed systems	8	8	16
parallel processors architecutes	4	4	8
vector processors, compilers, loosly and tighly coupled processors	6	6	12
data flow machines, data pallelism, interconnecting networks, parallel programming, cluster programming, shared memory ,programming	6	6	12
message passing, client/server , computing, performance .evaluation, case studies	4	4	8
Total sum	28	28	56

5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation

	10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible.
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and tutorials. 4. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Oral Examination 3. Formative (quizzes- presentation -reports) 4. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no . 8 - Quizz-2: Week no. 12 - Final – term examination: Week no. 16
c- Weighting of assessment	- Class tutorial and quizzes : % - Mid-term examination: % - Final – term examination: % Total 100 %
10- List of text books and references:	
a- Course notes	Lecture note not avaliable
b- Text books/ References	[1] Claudia Leopod, parallel and distributed computing: a survey of models, paradigms, and approaches. Willy, 2001.. [2] Bary Wilkinson, Michael Alien, Parallel Programming, prentice hall, 1999.
c- Periodicals, Web sites .....etc	-

11-Course contents – Course related program competencies						
	Level A			Level B		
	A.4	A.6	A.9	B.3	B.4	B.5
Introduction to the theory of languages, evolution of computer languages and translators	√	√	√		√	
formal specification of languages, context dependent and context free languages	√	√		√		
logical structure of a compiler, lexical, syntax and semantic analysis,		√	√		√	√
code generation and optimization, strorage and register allocation	√	√	√	√		√
runtime considerations.	√		√	√	√	

12-Teaching and learning methods - Course related program competencies						
	Level A			Level B		
	A.4	A.6	A.9	B.3	B.4	B.5
Lecture (online/in class)	√	√	√	√	√	√
Discussion	√	√		√	√	√
Tutorial	√	√	√	√	√	√
Problem solving				√		
Brain storming				√	√	√
Self-learning						√
Research and Reporting					√	
Teamwork						

13- Assessment methods - Course related program competencies		
Assessment methods	Course related program comptencies	
	Level A	Level B

	A.1	A.3	A.4	B.3	B.4	B.5
1. Mid Term Examination (written/ online)	√	√	√	√		
2. Practical Examination						
3. Oral Examination		√	√	√	√	
4. Formative (quizzes- presentation -reports)	√	√	√	√	√	√
5. Final Term Examination (written	√	√	√	√	√	√

Authorized from board of the department at 1/9/2022
Course coordinator:

Dr. Nader Mohamed Abd Elmohsen

Course Specification

1- Basic Information

Course Title	**Artificial_Intelligence**	
Course Code	**CSE 471**	
Academic Year	2022-2023	
Coordinator	Dr. Gafary Mahmoud	
Teaching Staff	Dr. Gafary Mahmoud	
Level	Level (4)	
Semester	Second Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	2
	Lab	0
Department offering the program	• Electronics and Communications Engineering, • Computers and Systems Engineering, • Communications and Computer Engineering	
Department offering the course	•Computers and Systems Engineering	

2- Aim of the course

1. To teach student basics of artificial intelligence, and its applications.
2. To equip students with methods of search strategies, fuzzy logics, machine learning, and neural networks.
3. To acquire students a good idea to use blind search methods.
4. To teach students the concepts and applications of rule-based systems.
5. To provide students with the design steps of intelligent control systems.

3- Course related program competencies

Level A – General	**A.1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.** **A.2. Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions** **A.3. Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.** **A.5. Practice research techniques and methods of investigation as an inherent part of learning.**
Level B - Speciality	
4- Course Contents	Search: Graph search – Constraint satisfaction - Games – Machine Learning: Decision trees, Neural Networks: Knowledge representation and inference: Propositional and first order logic – Rule-based systems – Fuzzy logic systems.

# Topic	Lecture	Tutorial/Practical	No of hours
Search: Graph search	2	2	4
Fuzzy logic systems	4	4	8
Neural Networks:	4	4	8
Machine Learning: Decision trees Propositional and first order logic – Rule-based systems	4	4	8

Knowledge representation and inference.	4	4	8
Total sum	18	18	36

5- Teaching and learning methods	1. Lecture (/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation 10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and tutorials. 4. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no . 8

	- Quizz-2: Week no. 12 Final – term examination: Week no. 16
c- Weighting of assessment	- Class tutorial and quizzes : 10 % - Mid-term examination: 20 % - Final – term examination: 70 % Total 100 %
10- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a pdf.
b- Text books/ References	▪ Aarup, M., Arentoft, M. M., Parrod, Y., Stader, J., and Stokes, I. (1994). OPTIMUM-AIV: A knowledge-based planning and scheduling system for spacecraft AIV. In Fox, M. and Zweben, M., editors, Knowledge Based Scheduling. Morgan Kaufmann, San Mateo, California. ▪ Stuart and Peter Norving Artificial Intelligence: a modern approach Russel Prentice Hall, 2nd Ed 2003 ▪ Abu-Mostafa, Y. S. and Psaltis, D. (1987). Optical neural computers. Scientific American, 256:88-95.
c- Periodicals, Web sites .....etc	Web Sites related to Artificial Intelligence engineering as: www. Artificial Intelligence.hmc.edu, www.tutorial. Artificial Intelligence.edu, www.web.mit.edu

11-Course contents – Course related program competencies							
	Level A			**Level B**			
	A.1	**A.2**	**A.3**	**B.1**	**B.2**	**B.3**	**B.4**
Solving problems by searching	√	√	√	√	√	√	√
Inference in First Order Logic	√	√	√	√		√	
Fuzzy logic control	√	√	√	√	√	√	√
Intelligent Agent	√	√	√	√		√	
Learning in Neural and Belief Networ	√	√	√	√	√	√	√

12-Teaching and learning methods - Course related program competencies								
	Level A				Level B			
	A.1	A.2	A.3	A.5	B.1	B.2	B.3	B.4
Lecture (online/in class)		√	√	√	√	√	√	√
Discussion		√	√	√	√		√	
Tutorial	√	√	√	√	√	√	√	√
Problem solving	√	√	√	√	√		√	
Brain storming	√	√	√	√	√	√	√	√
Projects	√	√	√	√	B.1	B.2	B.3	B.4
Self-learning		√			√	√	√	√
Research and Reporting			√		√		√	
Computer Simulation					√	√	√	√
Teamwork					√		√	

13- Assessment methods - Course related program competencies								
Assessment methods	Course related program comptencies							
	Level A				Level B			
	A.1	A.2	A.3	A.5	B.1	B.2	B.3	B.5
1. Mid Term Examination (written/ online)	√	√	√	√	√	√	√	√
2. Practical Examination				√	√			
3. Oral Examination						√	√	√
4. Formative (quizzes- presentation -reports)	√	√	√	√	√	√	√	√
5. Final Term Examination (written	√	√	√	√	√	√	√	√

Authorized from board of the department at 4/2/2023

Course coordinator:

Dr. Gafary Mahmoud

Ministry of Higher Education
High Institute of Electronic Engineering
Ministerial Resolution 5053 - 12/10/2016
K 10, Bilbies – 10th of Ramadan

وزارة التعليم العالي
المعهد العالي للهندسة الإلكترونية
قرار وزاري 5053 – 2016/10/12
ك 10 طريق بلبيس العاشر من رمضان

Course Specification

1- Basic Information

Course Title	**Industrial Process Control**	
Course Code	CSE 463	
Academic Year	2022-2023	
Coordinator	Dr. Bassam A. Hemade	
Teaching Staff	Dr. Bassam A. Hemade	
Level	Level (4)	
Semester	Second Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	1
	Lab	1
Department offering the program	• Computers and Systems Engineering,	
Department offering the course	Electronics Engineering and Electrical Communication	

2- Aim of the course

1. To introduce the students to basic components of control systems that existed in the industry, and actions of controllers.
2. To enhance students' ability to define the required actions of the controller based on safe-fail criteria.
3. To acquire students the skills for improving feedback controllers gains, and tuning strategies.
4. To emphasize the comprehensive treatment of cascaded control, override, selective control, Ratio, and feedforward control
5. To analyze multivariable process control.

3- Course related program competencies

Level A – General	A.1 Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics. A.3 Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical, and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development A.4 Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.
Level B - Speciality	B.2 Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design. B.3 Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools. B.4 Estimate and measure the performance of an electrical / electronic/digital system and circuit under specific input excitation and evaluate its suitability for a specific application. B.5 Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems, and services.
4- Course Contents	Basic components of control systems: Actions of controllers; Tuning of feedback controllers, Cascade control; Override and selective control; Ratio and feedforward control; Multivariable process control.

# Topic	**Lecture**	**Tutorial/Practical**	**No of hours**
Basic components of control systems: Actions of controllers	8	8	16
Tuning of feedback Controllers	6	6	12
Cascade Control	4	4	8
Override and Selective control	4	4	8
Ratio and feedforward control, Multivariable process control.	6	6	12
Total sum	28	28	56
5- Teaching and learning	1. Lecture (online/in class) 2. Discussion		

methods	3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation 10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and tutorials. 4. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no . 8 - Quizz-2: Week no. 12 - Final – term examination: Week no. 16
c- Weighting of assessment	- Class tutorial and quizzes : % - Mid-term examination: % - Final – term examination: % Total 100 %
10- List of text books and references:	

a- Course notes	Lecture Notes
b- Text books/ References	[1] C.A. Smith and A. Corripio, Principles, and Practice of Automatic Process Control, John Wiley, 2nd Ed., 1997. ***Assessment:***
c- Periodicals, Web sites .....etc	www.sites.google.com\view\bassam-awny

11-Course contents – Course related program competencies							
	Level A			**Level B**			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
Basic components of control systems: Actions of controllers	√						
Tuning of feedback Controllers	√	√		√	√	√	√
Cascade Control		√	√			√	√
Override and Selective control	√	√	√				
Ratio and feedforward control, Multivariable process control.			√				

12-Teaching and learning methods - Course related program competencies							
	Level A			**Level B**			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
Lecture (online/in class)	√						
Discussion	√	√	√	√	√	√	√
Tutorial	√	√	√	√	√		
Problem solving			√	√	√		
Brain storming				√	√	√	√
Projects				√	√	√	√
Self-learning							√
Research and Reporting						√	

Computer Simulation						√	√
Teamwork							

13- Assessment methods - Course related program competencies							
Assessment methods	**Course related program comptencies**						
	Level A			**Level B**			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
1. Mid Term Examination (written/ online)	√	√	√	√	√		
2. Practical Examination							
3. Oral Examination							
4. Formative (quizzes- presentation -reports)	√	√	√	√	√		
5. Final Term Examination (written	√	√	√	√	√		

Authorized from board of the department at 1/9/2022
Course coordinator:

Dr Bassam A. Hemad

Course Specification

1- Basic Information

Course Title	**Embedded Systems**	
Course Code	CSE 423	
Academic Year	2022-2023	
Coordinator	D. Nader Mohamed Abd Elmohsen	
Teaching Staff	D. Nader Mohamed Abd Elmohsen	
Level	Level (4)	
Semester	Second Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	1
	Lab	1
Department offering the program	• Computers and Systems Engineering	
Department offering the course	Computers and Systems Engineering	
2- Aim of the course		

1. To provide students with the several ways of accomplishing, utilizing and manipulating the different types of embedded systems.
2. Programming the FPGA with high efficiency and reliability using HDL.
3. Having acquired a good knowledge about FPGA Structure: architecture, configurable logic blocks, routing, lookup tables, memory and I/O blocks.
4. To analyze embedded devices, design tools structure and programming
5. To acquire proficiency with Field Programmable Gate Arrays (FPGA)s for the purpose of creating prototypes or products for a variety of applications.
6. To provide a challenge for the more experienced designer.
7. To explore complexities, capabilities and trends of Field Programmable Gate Arrays (FPGA) and Complex Programmable Logic Devices (CPLD).
8. To practice conception, design, implementation, and debugging skills.

3- Course related program competencies

Level A – General	A.5 Practice research techniques and methods of investigation as an inherent part of learning. A.3 Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
Level B - Speciality	B.1 Select, model and analyze electrical power systems applicable to the specific discipline by applying the concepts of: generation, transmission and distribution of electrical power systems. B.2 Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design. B.3 Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and professional tools. B.4 Estimate and measure the performance of an electrical / electronic/digital system and circuit under specific input excitation and evaluate its suitability for a specific application.
4- Course Contents	Introduction to embedded systems. Introduction to HDL: entities and architecture, RTL, structural, dataflow and behavioral description. FPGA Structure: architecture, configurable logic blocks, routing, lookup tables, memory and I/O blocks. FPGA design flow. Sequential processes and finite state machines.

	Soft processors, busses and peripherals. Embedded design tools structure and programming.

# Topic	Lecture	Tutorial/Practical	No of hours
Introduction to embedded systems.	2	2	4
Introduction to HDL: entities and architecture, RTL, structural, dataflow and behavioral description.	4	4	8
FPGA Structure: architecture, configurable logic blocks, routing, lookup tables, memory .and I/O blocks	4	2	6
FPGA design flow.	4	4	8
Sequential processes and finite .state machines	5	4	9
Soft processors, busses and peripherals.	5	4	9
Embedded design tools .structure and programming	4	8	12
Total sum	28	28	56

5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation 10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and

	tutorials. 4. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no . 8 - Quizz-2: Week no. 12 - Final – term examination: Week no. 16
c- Weighting of assessment	- Class tutorial and quizzes : % - Mid-term examination: % - Final – term examination: % Total 100 %
10- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department.
b- Text books/ References	▪ M. Mano and C. Kime, "Logic and Computer Design Fundamentals," 2nd Edition, Prentice Hall, Upper Saddle River, 2001. ▪ S. brown and Z. vranesic, "Fundamentals of digital logic with VHDL", design 3rd edition, 2009 ▪ V. Pedroni, "Circuit Design with VHDL", 2004 Douglas L. Perry, "VHDL: Programming by Example", 4th Edition, 2002
c- Periodicals, Web sites .....etc	Web Sites related to Embedded Systems as: https://www.volersystems.com/blog/fpga-embedded-systems

11-Course contents – Course related program competencies						
	Level A		Level B			
	A.5	A.6	B.1	B.2	B.3	B.4
Introduction to embedded systems.	√					
Introduction to HDL: entities and architecture, RTL, structural, dataflow and behavioral description.	√	√	√	√	√	√
FPGA Structure: architecture, configurable logic blocks, routing, lookup tables, memory and I/O blocks.		√	√		√	√
FPGA design flow.	√	√				
Sequential processes and finite state machines.		√		√		
Soft processors, busses and peripherals.	√		√			√
Embedded design tools structure and programming.		√		√		√

12-Teaching and learning methods - Course related program competencies						
	Level A		Level B			
	A.5	A.6	B.1	B.2	B.3	B.4
Lecture (online/in class)	√					
Discussion	√	√ √	√	√	√	√
Tutorial	√	√	√	√		
Problem solving		√	√	√		
Brain storming			√	√	√	√
Projects			√	√	√	√
Self-learning						√
Research and Reporting					√	
Computer Simulation					√	√

Teamwork						

13- Assessment methods - Course related program competencies						
Assessment methods	**Course related program comptencies**					
	Level A		**Level B**			
	A.5	**A.6**	**B.2**	**B.3**	**B.4**	**B.5**
1. Mid Term Examination (written/ online)	√	√	√	√		
2. Practical Examination			√	√	√	√
3. Oral Examination		√				
4. Formative (quizzes- presentation -reports)	√	√	√	√		√
5. Final Term Examination (written)	√	√	√	√	√	√

Authorized from board of the department at 11/2/2023
Course coordinator:

Dr. Nader Mohamed Abd Elmohsen

Department offering the program: Electronics and Communications Engineering, Computers and Systems Engineering, Communications and Computer Engineering

Department offering the course: Computers and Systems Engineering

Course Specification

1. Course Basic Information:			
Course Code: CSE 491	**Course Title: Graduation Project**	**Academic years: 2021/2022** **Level (4) – Semester : 2st**	
Institute Requirement	**Teaching hours:**		
	Lecture : 2	**Tutorial: 0**	**Lab : 2**

2. Course Objectives
1- Learn how to design web site . 2- define the different ways to design 3- chose hosting and domain 4- Be able to manage time, tasks, and resources. 5- Be able to work in a team. 6- Think in a creative and innovative way in solving, and design engineering problems. 7- Take decisions, lead, and motivate individuals.

3. Intended Learning Outcomes: ARS		**Course ILOs**
A. Knowledge and Understanding:	A4) Demonstrate principles of design including elements design, process and/or a system related to computer systems engineering. A11) Define professional ways to design and compare to obtain perfect way A18) Describe Computer Networking and Communication Systems. A21) Describe applications of Computer engineering.	A4.1) Demonstrate the Methodologies of Gathering literatures, A4.2) Demonstrate the steps of background survey. A11.1) Demonstrate the Implementation of prototype, and testing. A11.2) Learn the concepts of writing technical report. A18.1) Know how to Analyze, design, modeling and programming methods using computer based applications.

B. Intellectual Skills	B1) Select appropriate computer-based methods for modeling and analyzing problems. B2). Select appropriate solutions for engineering problems based on analytical thinking. B3). Think in a creative and innovative way in problem solving and design. B4). Combine, exchange, and assess different ideas, views, and knowledge from a range of sources. B5). Assess and evaluate the characteristics and performance of components, systems and processes.	B1.1) Select the analysis technique. B1.2) Use appropriate Gathering literatures. B2.1) Choose suitable hosting and domain B2.2) Use testing method. B3.1) Design Problem definition. B3.2) Develop background survey. B4.1). Combine the Analysis, design, modeling and programming. B4.2). Exchange circuitry construction. B5.1). Evaluate the Implementation. B5.2). Judge the Prototype. B6.1). Search the failure in Implementation. B6.2). Design a Prototype for that failure. B9.1). Develop and Enhance circuitry construction. B9.2). Develop background survey.
C. Professional Skills	C1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems. C2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services. C3) Create and/or re-design a process, component or system, and carry out specialized engineering designs. C4) Practice the neatness and aesthetics in design and approach. C5) Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results. C6) Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs. C7) Apply numerical modeling methods to engineering problems. C11) Exchange knowledge and skills with engineering community and industry.	C1.1) Apply Problem definition. C1.2) Merge knowledge of science, to solve engineering problems. C1.3) Use knowledge of information technology to solve engineering problems. C2.1). Merge the engineering knowledge to improve design. C2.2). Consolidate the engineering understanding to improve products. C2.3). Combine the engineering feedback to improve services C3.1). Create a process, component and system. C3.2). Perform specialized engineering designs. C4.1). Develop the design in a neatness way. C4.2). Prepare the approaches in a style and fineness method. C5.1). Apply computational facilities and techniques, to design experiments. C5.2). Use measuring instruments to analyze and interpret results. C5.3). Select workshops and laboratory equipment to collect results. C6.1). Utilize a wide range of analytical tools and techniques to investigate computer programs. C6.2). Prepare a verity range of equipment, and software packages to develop computer programs.

D. General Skills	D1) Collaborate effectively within multidisciplinary team. D2). Work in stressful environment and within constraints. D3). Communicate effectively. D4). Demonstrate efficient IT capabilities. D5). Lead and motivate individuals.	D1.1) Work as an individual. D1.2) Work as a member team. D1.3) Work as a leader. D2.1) Work under pressure environment D2.2) Work within constraints D3.1). How can you communicate with others in an effective way. D3.2). How can you communicate with team leader in appropriate way. D4.1). Understand IT ability. D4.2). Develop IT efficiency. D5.1) Work as an individual. D5.2) Work as a member team. D5.3) Work as a leader.

4. Course Contents

Syllabus: The aim of the project is to give students a major design experience that will both develop and demonstrate the knowledge and skills acquired in earlier course work and will incorporate engineering standards and realistic constraints including economic, environmental, sustainability, manufacturability, ethical and safety considerations. In addition, the project should represent an actual problem or need of the industry or the community. The purpose of Part 1 of the Graduation Project is to explore a chosen topic and to discover and define the project problem. After initial introductory lectures, students will perform research work to explore different approaches to the problem at hand. Based on this research study, students will perform system level analysis to explore specifications. The output of Project 1 is a major report outlining the project feasibility results and laying the ground for the detailed design and implementation phase to be conducted in Project 2. This document should include a detailed project plan indicating major project implementation milestone with clear assignment of tasks among project team members.

يهدف المشروع الي اكساب الطلبة خبرة العمل بتصميم كبير يظهر قدراتهم ومهارتهم التي اكتسبوها في المواد التي سبق لهم دراستها وينميها في نفس الوقت. كما يهدف المشروع الي تطبيق المعايير الهندسية وادخال القيود الواقعية في الاعتبار سواء كانت قيودا اقتصادية, بيئية, تصنيعية, اخلاقية او قيود تتعلق بالأمان. بالإضافة الي ذلك يجب ان يتعامل المشروع مع مشكلة واقعية او احتياج حقيقي للصناعة والمجتمع .
يهدف الجزء الاول من المشروع الي استطلاع ودراسة الموضوع الذي تم اختياره من اجل تحديد وتوصيف المشكلة المراد حلها. يقوم الطلبة في هذا الجزء, بعد عدد من المحاضرات, بعمل بحث يستطلع الاساليب المختلفة لمعالجة المشكلة ثم يلي ذلك دراسة تحليلية تهدف الي استطلاع جدوي المشروع والوصول الي تصميم اولي علي مستوي النظام بالإضافة الي تركيبة ومواصفات النظام المقترح . ويكون المخرج الاساسي لمادة المشروع 1 تقريرا مفصلا يعرض دراسة جدوي المشروع ومهد للمرحلة القادمة والتي تشتمل علي التصميم المفصل وتنفيذ النظام المقترح ويجب ان يحوي هذا التقرير خطة مفصلة لتنفيذ المشروع توضح المراحل المختلفة وتوزيع الادوار علي فريق العمل من الطلبة

5. Teaching and Learning Methods

- Lectures
- Labs and workshops
- Research assignments

6. Teaching and Learning Methods for disable students
• Assign a portion of the office hours for those students. • Give them specific tasks and evaluate them in it. • Repeat the explanation of some of the course material and tutorials. • Assign a teaching assistance to follow up the performance of this group of students.

7. Student Assessment	
a. Assessment Methods	- Weekly following up. - Monthly assignments. - Presentations. ▪ - Final oral exam.
b. Assessment Schedule	▪ - Meeting and following up: Weekly ▪ presentation 1: Week no 3 ▪ presentation 2: Week no 6 ▪ presentation 3: Week no 10 ▪ presentation 4: Week no 13 ▪ Final – Oral examination: Week no 14
c. Weighting of Assessment	- Year work: 50 % - Oral examination: 50 % --- - Total 100 %

8. List of text books and references	
a. Course notes	▪ None
b. Text books	▪ None
c. Recommended books	▪ It depends on Project subject.
d. Periodicals, Web sites …etc	▪ It depends on Project subject.

Course contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual Skills	C- Professional and Practical Skills	D- General and Transferable Skills
Problem definition	1-4	A4, A11, A18,A21	B.4	C11, C22	D1,D3,D7,D9
Gathering literatures, and background survey	3	A4, A11, A18,A21	B.4	C11, C22	D1,D3,D7,D9
Analyze, design, modeling and programming	4-5	A4, A11, A21	B1,B2,B3, B11,B18	C1,C2,C3, C4,C5, C6,C7,C14	D2,D4,D6

Teaching and Learning Methods - ILOs Matrix

Teaching and Learning Methods	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Lectures	A4, A11, A18,A21			
tutorials	A4, A11, A18	B1,B2,B3, B11,B18	C1,C2,C3, C4,C11,C12, C14,C22	D1,D3,D5, D7,D9
Labs		B4,B5,B6, B9,B10	C1,C2,C3, C4,C5, C6,C7,C11,C12, C14, C19, C20, C22,C23	
Research assignments		B1,B2,B3, B11,B18		D2,D4,D6, D8

Assessment Methods - ILOs Matrix

Assessment Methods	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Weekly assignment		B1,B2,B3, B11,B18	C1,C2,C3, C4,C5,C6, C7,C11,C12, C14, C19, C20, C22,C23	
Reports and presentation		B1,B2,B3, B11,B18		D1,D3,D5, D7,D9
Quizzes	A4, A11, A18			D2,D4,D6, D8
Final exam	A4, A11, A18	B4,B5,B6, B9,B10	C1,C2,C3, C4,C5,C6, C7,C11,C12, C14,C22,C23	

Course coordinator:

Doctor. Soheir afifi

Ministry of Higher Education
High Institute of Electronic Engineering
Ministerial Resolution 5053 - 12/10/2016
K 10, Bilbies – 10th of Ramadan

وزارة التعليم العالي
المعهد العالي للهندسة الإلكترونية
قرار وزاري 5053 – 2016/10/12
ك 10 طريق بلبيس العاشر من رمضان

Course Specification

1- Basic Information

Course Title	**Project Management**	
Course Code	IEN 425	
Academic Year	2022-2023	
Coordinator	Dr .Mohamed El-Khamry	
Teaching Staff	Dr .Mohamed El-Khamry	
Level	Level (4)	
Semester	Second Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	2
	Lab	0
Department offering the program	• Electronics and Communications Engineering, • Computers and Systems Engineering, • Communications and Computer Engineering	
Department offering the course	Electronics Engineering and Electrical Communication	

2- Aim of the course

This course aims to provide the student the knowledge and the skills required to understand:

1. To teach student Project management
2. To equip students with methods of organizational structures
3. To acquire students a good idea to use assessing success, planning, and learning curves,
4. To teach students the concepts and applications of cost management, and risk management,
5. To provide students with the CPM analysis, and precedence network scheduling techniques

3- Course related program competencies	
Level A – General	A.1 Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics. A.2 Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions. A.4 Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.
Level B - Specialty	B.1 Select, model and analyze electrical power systems applicable to the specific discipline by applying the concepts of: generation, transmission and .distribution of electrical power systems B.2 Design model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to .optimize this design B.3 Design and implement elements, modules, sub-systems, or systems in electrical/electronic/digital engineering using technological and .professional tools B.4 Estimate and measure the performance of an electrical / electronic/digital system and circuit under specific input excitation and evaluate its suitability for .a specific application B.5 Adopt suitable national and international standards and codes to design, build, operate, inspect, and maintain electrical/electronic/digital equipment, systems, and services.
4- Course Contents	Project management overview, organizational structures و assessing success, Planning, learning curves, network scheduling techniques, CPM analysis, precedence networking, resource allocation and constraints, cost management, risk management, project performance measurement and control.

# Topic	Lecture	Tutorial/Practical	No of hours
Properties of electromagnetic waves	4	4	8
Maxwell's equations, Plane waves, Polarization	6	6	12
Propagation mechanisms: . reflection, transmission and refraction, scattering, diffraction	8	8	16

Antenna fundamentals and Propagation models	6	6	12
Antenna parameters, dipoles, arrays, loop antennas, helical antennas, patch antennas.	4	4	8
Total sum	28	28	56

5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation 10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and provide them with specific tailored tasks. 2. Repeat the explanation of some of the material and tutorials. 3. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 4 - Mid-Term exam: Week no. 8 - Quizz-2: Week no. 12 - Final – term examination: Week no. 16

c- Weighting of assessment	- Class tutorial and quizzes : 10 % - Mid-term examination: 20 % - Final – term examination: 70 % Total 100 %
10- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department.
b- Text books/ References	1- A Guide to the PROJECT MANAGEMENT BODY OF KNOWLEDGE (PMBOK® GUIDE) Sixth Edition 2- THE STANDARD FOR PROJECT MANAGEMENT
c- Periodicals, Web sites …etc.	https://classroom.google.com/c/NTUxNTAwMzEwODcx

11-Course ccontents – Course related program competencies

	Level A			Level B			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
Properties of electromagnetic waves	√	√	√	√			
Maxwell's equations, Plane waves, Polarization	√	√		√	√	√	√
Propagation mechanisms: reflection, transmission and refraction, scattering, diffraction		√	√			√	√
Antenna fundamentals	√	√	√		√		
Propagation models			√		√	√	√

12-Teaching and learning methods - Course related program competencies

	Level A			Level B			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
Lecture (online/in class)	√						
Discussion	√	√	√	√	√	√	√
Tutorial	√	√	√	√	√		

Problem solving			√	√	√		
Brain storming				√	√	√	√
Projects				√	√	√	√
Self-learning							√
Research and Reporting						√	
Computer Simulation						√	√
Teamwork							

13- Assessment methods - Course related program competencies							
Assessment methods	**Course related program competencies**						
	Level A			**Level B**			
	A.1	**A.3**	**A.4**	**B.2**	**B.3**	**B.4**	**B.5**
1. Mid Term Examination (written/ online)	√	√	√	√	√		
2. Practical Examination	√	√	√		√	√	√
3. Oral Examination		√		√		√	
4. Formative (quizzes- presentation -reports)	√	√	√	√	√		
5. Final Term Examination (written	√	√	√	√	√	√	√

Authorized from board of the department at 11/2/2023
Course coordinator:

Dr. Mohammed Elkhamry

Ministry of Higher Education
High Institute of Electronic Engineering
Ministerial Resolution 5053 - 12/10/2016
K 10, Bilbies – 10th of Ramadan

وزارة التعليم العالي
المعهد العالي للهندسة الإلكترونية
قرار وزاري 5053 – 2016/10/12
ك 10 طريق بلبيس العاشر من رمضان

Course Specification

1- Basic Information

Course Title	**مقدمة في المحاسبة**	
Course Code	**HUM 121**	
Academic Year	2022-2023	
Coordinator	Dr. Gamal El-Anani	
Teaching Staff	Dr. Gamal El-Anani	
Level	Level (4)	
Semester	Second Term	
Number of Weekly Contact Hours	Lecture	2
	Tutorial	0
	Lab	0
Department offering the program	• Electronics and Communications Engineering, • Computers and Systems Engineering, • Communications and Computer Engineering	
Department offering the course	Basic Science	

2- Aim of the course

1. Learn the principles of accounting concept & objectives , acceptable principals of accounting
2. Learn the accounting branches , types of institutions – financial statemen
3. Learn the principles of balance sheet , income statement , ownership proprietary statement , cash flow statement
4. Learn double entry & analysis of financial position formula , debit & credit items financial position formula.

3- Course related program competencies

Level A – General	**A.1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.** **A.2. Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions** **A.3. Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.** **A.5. Practice research techniques and methods of investigation as an inherent part of learning.**
Level B - Speciality	
4- Course Contents	The scientific frame of accounting : accounting concept & objectives , acceptable principals of accounting , accounting branches , types of institutions – financial statement – balance sheet , income statement , ownership proprietary statement , cash flow statement – double entry & analysis of financial position formula , debit & credit items financial position formula – the accounting cycle , business documents , the journals, the ledgers commercial documents according to the Egyptian laws , journalizing & recording the commercial transactions of the owner of the firm , commercial papers & documents different types of revenues & expenditure. Trail balance , trail balance concept & objectives , its balance & imbalance corrections in the imbalance cases . A brief presentations of accounting in she types of companies as partnership & corporation

# Topic	Lecture	Tutorial/Practical	No of hours
The scientific frame of accounting : accounting concept & objectives , acceptable principals of accounting , accounting branches , types of institutions	4	4	8
financial statement – balance sheet , income statement , ownership proprietary statement , cash flow statement – double entry & analysis of financial position formula	6	6	12
debit & credit items financial position formula – the accounting cycle , business documents , the journals, the ledgers commercial documents according to the Egyptian laws , journalizing & recording the commercial transactions of the owner of the firm	8	8	16
commercial papers & documents different types of revenues & expenditure. Trail balance , trail balance concept & objectives , its balance & imbalance corrections in the imbalance cases	6	6	12

A brief presentations of accounting in she types of companies as partnership & corporation	4	4	8
Total sum	28	28	56

5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. Tutorial 4. Problem solving 5. Brain storming 6. Projects 7. Self-learning 8. Research and Reporting 9. Computer Simulation 10. Teamwork
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Repeat the explanation of some of the material and tutorials. 4. Assign a teaching assistance to follow up their performance
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.
9- Students assessment	
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)
b- Assessment schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no. 5 - Mid-Term exam: Week no . 8

	- Quizz-2: Week no. 12 - Final – term examination: Week no. 16
c- Weighting of assessment	- Class tutorial and quizzes : 10 % - Mid-term examination: 20 % - Final – term examination: 70 % Total 100 %
10- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department.
b- Text books/ References	Mohammed Sabry El Attar , Mansoura Hamed & Ahmed El sabagh , Principals of financial accounting , Cairo University
c- Periodicals, Web sites .....etc	Web Sites related to Mathematics and Mathematical engineering as: **www.math.hmc.edu**, **www.tutorial.math.lamar.edu**, **www.web.mit.edu**

11-Course contents – Course related program competencies				
	Level A			
	A.1	**A.2**	**A.3**	**A.5**
The scientific frame of accounting : accounting concept & objectives , acceptable principals of accounting , accounting branches , types of institutions	√			
financial statement – balance sheet , income statement , ownership proprietary statement , cash flow statement – double entry & analysis of financial position formula	√	√		√
debit & credit items financial position formula – the accounting cycle , business documents , the journals, the ledgers commercial documents according to the Egyptian laws , journalizing & recording the commercial		√	√	

transactions of the owner of the firm				
commercial papers & documents different types of revenues & expenditure. Trail balance , trail balance concept & objectives , its balance & imbalance corrections in the imbalance cases	√	√	√	
A brief presentations of accounting in she types of companies as partnership & corporation			√	

12-Teaching and learning methods - Course related program competencies

	Level A			
	A.1	**A.2**	**A.3**	**A.5**
Lecture (online/in class)	√	√	√	√
Discussion	√	√	√	√
Tutorial	√	√	√	√
Problem solving	√	√	√	√
Brain storming	√	√	√	√
Projects	√	√	√	√
Self-learning		√		
Research and Reporting			√	
Computer Simulation				
Teamwork				

13- Assessment methods - Course related program competencies

Assessment methods	**Course related program comptencies**			
	Level A			
	A.1	**A.2**	**A.3**	**A.5**
1. Mid Term Examination (written/ online)	√	√	√	√
2. Practical Examination				

3. Oral Examination				
4. Formative (quizzes- presentation -reports)	√	√	√	√
5. Final Term Examination (written	√	√	√	√

Authorized from board of the department at 4/2/2023
Course coordinator:

Dr. Gamal El-Anany

Ministry of Higher Education
High Institute of Electronic Engineering
Ministerial Resolution 5053 - 12/10/2016
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وزارة التعليم العالي
المعهد العالي للهندسة الإلكترونية
قرار وزاري 5053 – 2016/10/12
ك 10 طريق بلبيس العاشر من رمضان

Course Specification

1- Basic Information

Course Title	**Monitoring & Quality Control Systems**	
Course Code	**IEN 427**	
Academic Year	2022-2023	
Coordinator	Dr/ aya salem	
Teaching Staff	Dr/ aya salem	
Level	Level (4)	
Semester	second Term	
Number of Weekly Contact Hours	Lecture	1
	Tutorial	0
	Lab	0
Department offering the program	• Electronics and Communications Engineering, • Computers and Systems Engineering, • Communications and Computer Engineering	
Department offering the course	Electronics Engineering and Electrical Communication Computers and Systems Engineering	

2- Aim of the course

1. *Learn history of quality, the dimensions of quality. Quality Control Concepts: quality assurance, total quality management.*
2. *Learn Control systems: objectives of control systems, quality systems, top management communicatingLearn the principles of multi-meter, the oscilloscope, signal generators.*
3. *Learn about Hazard Analysis: high - quality recommendations, commitment monitoring, follow up Systems, the base line of hazard analysis critical point (HACCP).*
4. *Demonstrate Sampling and Inspection: Sample size, sampling error, sampling designs and inspection, acceptance sampling plans. Quality Control Tools and Techniques: tools for creating new concepts, tools for organization and analysis of data, tools for determine and solving problems (Control Charts for Variables - Control Charts for Attributes - PRE - control - analysis - flow charts).*

5. *Understand International Standards Accreditation: Accreditation meaning, ISO requirements and recommendations, Audit program, Certification body. Analyzing Process Capability: Process capability indices, process performance* indices	
3- Course related program competencies	
Level A – General	A.5 Practice research techniques and methods of investigation as an inherent part of learning. A.7 Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams. A.8 Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools A.9 Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations. A.10 Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.
Level B - Speciality	
4- Course Contents	**Syllabus:** Introduction: history of quality, the dimensions of quality. Quality Control Concepts: quality assurance, total quality management. Control systems: objectives of control systems, quality systems, top management communicating. Hazard Analysis: high - quality recommendations, commitment monitoring, follow up Systems, the base line of hazard analysis critical point (HACCP). Sampling and Inspection: Sample size, sampling error, sampling designs and inspection, acceptance sampling plans. Quality Control Tools and Techniques: tools for creating new concepts, tools for organization and analysis of data, tools for determine and solving problems (Control Charts for Variables - Control Charts for Attributes - PRE - control - analysis - flow charts). International Standards Accreditation: Accreditation meaning, ISO requirements and recommendations, Audit program, Certification body. Analyzing Process Capability: Process capability indices, process performance indices. المقدمة: تاريخ الجودة, ابعاد الجودة. مفاهيم مراقبة الجودة: توكيد الجودة, ادارة الجودة الشاملة. التحكم والمراقبة: اهداف نظم المراقبة, نظم الجودة, الادارة العليا وقنوات الاتصال. تحليل نظم توصيات الجودة العالية, المراقبة الدائمة, نظم المتابعة المتتالية, اساسيات تحليل الخطر :الخطر الضبط والتفتيش: حجم العينة, خطأ العينة, تصميم المعاينة والتفتيش, . HACCP) والنقاط الهامة والقبول. تقنيات وادوات الضبط الاحصائى للجودة: ادوات خلق مفهوم جديد, ادوات خطط الفحص البيانات, ادوات حل المشاكل) خرائط التحكم للمتغيرات خرائط التحكم للخواص تنظيم وتحليل التأهيل للاعتماد الدولي: معني التأهيل, متطلبات الحصول علي شهادات – –)خرائط اخري الالتزامات المترتبة علي الشهادة. مقدرة العملية الصناعية: اهم المؤشرات ,الايزو, برامج التفتيش

	المستخدمة لتقدير المقدرة. .

# Topic	Lecture	Tutorial/Practical	No of hours
history of quality, the dimensions of quality. Quality Control Concepts: quality assurance, total quality management. Control systems: objectives of control systems, quality systems, top management communicating..	2	0	0
Hazard Analysis: high - quality recommendations, commitment monitoring, follow up Systems, the base line of hazard analysis critical point (HACCP)	2	0	0
Sampling and Inspection: Sample size, sampling error, sampling designs and inspection, acceptance sampling plans.	2	0	0
Quality Control Tools and Techniques: tools for creating new concepts, tools for organization and analysis of data, tools for determine and solving problems (Control Charts for Variables - Control Charts for Attributes - PRE - control - analysis - flow charts).	3	0	0
International Standards Accreditation: Accreditation meaning, ISO requirements and recommendations, Audit program, Certification body.	1	0	0
Analyzing Process Capability: Process capability indices,	2	0	0

process performance indices			
history of quality, the dimensions of quality. Quality Control Concepts: quality assurance, total quality management. Control systems: objectives of control systems, quality systems, top management communicating..	1	0	0
Hazard Analysis: high - quality recommendations, commitment monitoring, follow up Systems, the base line of hazard analysis critical point (HACCP)	1	0	0
Total sum	14	0	0
5- Teaching and learning methods	1. Lecture (online/in class) 2. Discussion 3. brain storming 4. Projects 5. Self-learning 6. Research and Reporting 7. Computer Simulation 8. Teamwork		
6- Teaching and learning methods for disable students	1. Additional Tutorials 2. Online lectures and assignments 3. Using as many audio/visual aids as possible. 4. Providing extra opportunities for practice		
7- Teaching and learning methods for low capacity students	1. Assign a portion of the office hours for those students and 2. provide them with specific tailored tasks. 3. Assign a teaching assistance to follow up their performance		
8- Teaching and learning methods for outstanding students	1. Assign course project tasks to those students. 2. Give them advanced extra-curriculum topics. 3. Encourage them to take part in a pilot research and case studies.		
9- Students assessment			
a- Assessment methods	1. Mid Term Examination (written/ online) 2. Practical Examination 3. Oral Examination 4. Formative (quizzes- presentation -reports) 5. Final Term Examination (written)		

b- Assessment schedule	- Quizz-1:	Week no. 5
	- Mid-Term exam:	Week no . 8
	- Quizz-2:	Week no. 12
	- Final – term examination:	Week no. 16
c- Weighting of assessment	- quizzes :	15 %
	- Mid-term examination:	15 %
	- Final – term examination:	70 %
	Total	100 %
10- List of text books and references:		
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department.	
b- Text books/ References	Besterfield, D., Quality Control, Prentice Hall, Englewood Cliffs NJ, USA, 6th. Ed., 2000.	
c- Periodicals, Web sites ……..etc		

11-Course contents – Course related program competencies					
	Level A				
	A.5	**A.7**	**A.8**	**A.9**	**A.10**
4- Course Contents	√	√			
# Topic	√	√			
history of quality, the dimensions of quality. Quality Control Concepts: quality assurance, total quality management. Control systems: objectives of control systems, quality systems, top management communicating..		√	√		
Hazard Analysis: high - quality recommendations, commitment monitoring, follow up Systems, the base line of hazard analysis critical point (HACCP)		√	√		
Sampling and Inspection: Sample size, sampling error, sampling designs and inspection, acceptance sampling plans.			√	√	
Quality Control Tools and Techniques: tools for creating new concepts, tools for organization and analysis of data, tools for determine and solving problems (Control Charts for Variables - Control Charts for			√	√	

Attributes - PRE - control - analysis - flow charts).					
International Standards Accreditation: Accreditation meaning, ISO requirements and recommendations, Audit program, Certification body.				√	√

12-Teaching and learning methods - Course related program competencies

	Level A				
	A.5	**A.7**	**A.8**	**A.9**	**A.10**
Lecture (online/in class)	√				
Discussion	√	√			
Tutorial	√	√	√	√	
Problem solving		√		√	
Brain storming			√		
Projects			√	√	
Self-learning					√
Research and Reporting			√		√
Computer Simulation				√	
Teamwork					√

13- Assessment methods - Course related program competencies

Assessment methods	**Course related program comptencies**				
	Level A				
	A.5	**A.7**	**A.8**	**A.9**	**A.10**
1. Mid Term Examination (written/ online)	√	√			
2. Practical Examination		√			
3. Oral Examination		√	√		
4. Formative (quizzes- presentation -reports)			√	√	

5. Final Term Examination (written				√	√

Authorized from board of the department at 11/2/2023
Course coordinator:

Dr./ aya .m. salem