

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	COMPUTER SKILLS			
Course Code (according to the bylaw):	CSC 001			
Department/s that participated in the teaching:	Electrical Engineering			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	1	4	-	5
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Ahmed Atef			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	8/11/2025			

2. Course Overview (Brief summary of scientific content):

The goal of this course is to teach and assess basic computer concepts and skills so that students can use computer technology in everyday life to develop new social and economic opportunities for themselves, their families, and their communities. This curriculum will help students to develop a fundamental understanding of computers; from using the Internet, to sending e - mail, to creating a resume. This curriculum helps in developing the essential skills the student needs to begin computing with confidence.

The course consists of five modules: 1) Computer Basics (Introduction to Computers - Common Computer Terminology - Computer Performance and Features - Computer Operating Systems - Career Opportunities); 2) The Internet and the World Wide Web (The Internet - The World Wide Web - Using e - mail - Other Methods of Communicating on the Internet); 3) Productivity Programs (Introduction to Productivity Programs - Common Features and Commands - Introduction to Word Processing - Introduction to Spreadsheet Programs - Introduction to Presentation Programs - Introduction Database Programs); 4) Computer Security and Privacy (Introduction to Computer Security and Privacy - Protecting Your Computer - Protecting Your Family from Security Threats - Keeping Your Computer Secure and Updated - Computer Ethics); 5) Digital Lifestyles (The Digital Experience, Introduction to Digital Audio - Introduction to Digital Video - Introduction to Digital Photography - Digital Technology and Career Opportunities)

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS)		Course Learning Outcomes	
(A2, A4, A10)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A2	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.	LO 1	Analyze different data types using computer applications.
		LO 2	Modify data types for application in future tasks.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	LO 3	Apply design software tools to solve simple real-life applications in the electrical field.
		LO 4	Identify the latest types of computer peripherals.

A10	Acquire and apply new knowledge and practice self, lifelong and other learning strategies.	LO 5	Troubleshoot basic network connections using fundamental networking principles.
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4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
√	√		√			√	√			√		√			

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Training		
				Tutorial	/ Practical Lab	
1	Computer Basics (Introduction to Computers - Common Computer Terminology - Computer	5	1	-	4	
2	Performance and Features - Computer Operating Systems - Career Opportunities);	5	1	-	4	
3	The Internet and the World Wide Web (The Internet - The World Wide Web	5	1	-	4	
4	Using e - mail - Other Methods of Communicating on the Internet);	5	1	-	4	
5	Productivity Programs (Introduction to Productivity Programs - Common Features and Commands	5	1	-	4	

6	Introduction to Word Processing - Introduction to Spreadsheet Programs - Introduction to Presentation Programs -	5	1	-	4
7	Revision and Mid Exam				
8	Introduction Database Programs);	5	1		4
9	Computer Security and Privacy (Introduction to Computer Security and Privacy - Protecting Your Computer	5	1		4
10	Protecting Your Family from Security Threats - Keeping Your Computer Secure and Updated - Computer Ethics);	5	1		4
11	Digital Lifestyles (The Digital Experience	5	1		4
12	Introduction to Digital Audio - Introduction to Digital Video	5	1		4
13	Introduction to Digital Photography - Digital Technology and Career Opportunities).	5	1		4
14	Revision	5	1		4
15,16	Final Exam.				

Experiment Topics: (If any)

Practice using ICDL components

Serial	Experiment
1	<u>Word Processing:</u> • Understand the key concepts of word processing. • Identify the different file formats and how to save them. • Recognize good practice applying formatting options. • Understand the different elements, objects, and data that can be added to a document. • Know how to finalize a document and prepare it for printing. • Prepare and create documents using mail merge.

2	<u>Excel (Spreadsheets):</u> - Understand the key concepts of spreadsheets. - Use available help resources and shortcuts to enhance productivity. - Recognize good practice in inserting, editing, and deleting data. - Apply a range of mathematical and logical formulas and functions. - Know how to communicate information using charts and graphs.
3	<u>Power Point (Presentation):</u> - Understand the key concepts of using presentation software. - Identify the options available in built- in layouts, designs, and themes. - Developing presentations views for slides and master slides. - Recognize good practice in formatting text and tables. - How to add charts, pictures, and drawn objects to enhance presentations. - Enhancing presentations through animations and slide transition. - Prepare a presentation to be used for presenting or printing.

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	-	-	-
2	Exam 2 written (Semester work)	-	-	-
3	Midterm exam	7	30	30 %
4	Final Written Exam	16	30	30 %
5	Final Practical/Clinical/... Exam	-	-	-
6	Final Oral Exam	-	-	-
7	Assignments / Project /Portfolio/ Logbook	3,5,10	40	30 %
8	Field training	-	-	-
9	Other (Mention)	12	10	10 %

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference	- Available Presentation (handed to students part by part). - Introduction to Computers Software and Hardware 2020.
	Other References	
	Electronic Sources	
	Learning Platforms	EKB - Microsoft office

Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data show
	Supplies	whiteboard
	Electronic Programs	
	Skill Labs/ Simulators	Computers labs
	Virtual Labs	
	Other	

	Course Coordinator	Program Coordinator
Name	Dr. Ahmed Atef	Assoc.Prof. taghreed said
Signature	Ahmed Atef	Taghreed said

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Mathematics 001			
Course Code (according to the bylaw):	MTH 001			
Department/s that participated in the teaching:	<u>BASIC SCIENCES</u>			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	<u>2</u>	<u>2</u>		<u>4</u>
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr Sabry El-Shourbagy			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	7/26/2025			

2. Course Overview (Brief summary of scientific content):

Matrices - Logarithmic and Exponential functions- Derivatives and integrals(Natural Logarithm Function Natural Exponential function- General Exponential - and general Logarithmic functions)- Inverse trigonometric functions- Derivatives and integrals involving inverse trigonometric functions- Hyperbolic and inverse hyperbolic functions- Derivatives and integrals involving Hyperbolic functions- inverse Hyperbolic Functions)- Techniques of integration (integration by parts- Trigonometric integrals, Trigonometric Substitutions, integrals of rational functions and partial fraction)- integrals involving Quadratic- L'Hôpital's Rule (Different types of indeterminate forms).

Improper integrals- improper integrals of the first and second types)- Application of integrations (area – volume – arc length – surface area).

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes	
(A1, A2, A8, A10)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics	LO1	Apply the matrix operations as: multiply, adding, transpose, and determinant to solve the linear systems of equations.
		LO2	Identify the domain and range of the logarithmic, exponential, trigonometric, hyperbolic functions.
		LO3	Assess the derivative actions to compute the differentiations for exponential and logarithmic functions.
		LO4	Assess the derivative actions to compute the differentiations for trigonometric, inverse trigonometric, hyperbolic, and inverse hyperbolic functions.
A2	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	LO5	Evaluate the integration for exponential and logarithmic functions.
		LO6	Evaluate the integration for trigonometric, inverse trigonometric, hyperbolic, and inverse hyperbolic.
A8	Communicate effectively graphically, verbally and in writing with a range of audiences using contemporary tools	LO7	Apply the integration techniques as integration by parts and substitution to evaluate the integration problems.
		LO8	Describe the integration to determine the area and the volume bounded and generated by graph function.

A10	Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.	LO9	Assess the L'Hopital's rule to calculate the limits for undetermined functions.
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4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
√	√	√			√	√	√			√					

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	Introduction and overview of matrix and operation on matrices	4	2	2	0
2	Solving linear system of $n \times n$ equations and discuss the type of solutions. And Revision	4	2	2	0
3	Identify and Derivative of the exponential and logarithmic functions	4	2	2	0
4	Integrate the exponential and logarithmic functions and Revision	4	2	2	0
5	Derivative and Integrate of the Trigonometric and inverse Trigonometric functions	4	2	2	0
6	Derivative and Integrate of the hyperbolic and inverse hyperbolic functions and Revision	4	2	2	0
7	Revision and Mid Exam				

8	Integration by parts	4	2	2	0
9	Techniques of integrations (substitution, partial fractions ,...)	4	2	2	0
10	Techniques of integrations and revision	4	2	2	0
11	Applications on integral (Area, Volume, area,)	4	2	2	0
12	Applications on integral (Arc length, surface area) and Revision	4	2	2	0
13	Limits and L'Hopital's Rule, and Revision	4	2	2	0
14	Proper and Improper integrals and discuss convergence and divergence for improper integral	4	2	2	0
15,16	Final Exam.				

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	QUIZ 1 written (Semester work)		10	10%
2	QUIZ 2 written (Semester work)		10	10%
3	Midterm exam	7	20	20 %
4	Final Written Exam	15	40	40 %
7	Assignments (Report & Sheet)		20	20%

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	- Erwin Kreyszig, Advanced Engineering Mathematics - Earl W. Swokowski, "Calculus". - Thomas' Calculus: Early Transcendentals
	Other References	Schaum's Outline of Fourier Analysis with Applications to Boundary Value Problems 1st Edition

	Electronic Sources (Links must be added)	https://archive.org/details/AdvancedEngineeringMathematicsKreyszigE.9thEdWiley20061245s https://archive.org/details/calculus00swok https://www.amazon.com/Calculus-Classic-Earl-W-Swokowski/dp/0534435386 https://dokumen.pub/thomas-calculus-early-transcendentals-15-global-in-si-unitsnbsped-9780137559893-1292725907-9781292725901-9781292457628.html
	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Notebook and data show equipped lecture room.
	Supplies	Teaching aids and computers.
	Other (to be mentioned)	Notebook and data show equipped lecture room.

	Course Coordinator	Program Coordinator
Name	Dr Sabry El-Shourbagy	Prof. Ahmed Abd El-Gafar
Signature	<i>Dr Sabry El-Shourbagy</i>	

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Engineering Drawing & Projection (1)			
Course Code (according to the bylaw):	ENG 003			
Department/s that participated in the teaching:	Mechanical Engineering			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	1	3	--	4
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Ahmed Shaaban			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	8/12/2025			

2. Course Overview (Brief summary of scientific content):

Techniques and skills of engineering drawing, normal and auxiliary projections. Solid geometry. Intersections between planes and solids.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS) (according to the matrix in the program specs)		Course Learning Outcomes	
(A3&A4&A8)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A3	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	LO1	Sketch 2D and 3D engineering drawings using standard projection methods.
		LO2	Apply dimensioning and lettering techniques to produce clear engineering sketches.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles	LO3	Construct engineering drawings using standard lines, shapes, and drawing conventions.
		LO4	Create 3D geometric models using isometric projection techniques with CAD tools.
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	LO5	Demonstrate orthographic projections of 3D objects with appropriate views and clarity.
		LO6	Analyze the interaction between projection planes and 3D solids to interpret technical information.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
✓	✓	✓			✓	✓	✓				✓				

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	Identify the course and the tools required for the drawing.	4	1	-	3
2	Introduction of principles of engineering lines used in drawing	4	1	-	3
3	Drawing engineering operations and some application on it.	4	1	-	3
4	Drawing engineering operations and some application on it.	4	1	-	3
5	Drawing of some exercise on engineering operations.	4	1	-	3
6	Geometric construction theories of view derivation.	4	1	-	3
7	Revision and Mid Exam				

8	Orthographic projection of engineering bodies.	4	1	-	3
9	Drawing of simple isometrics and its projections.	4	1	-	3
10	Drawing of some exercise for simple isometrics its projections	4	1	-	3
11	Drawing of some exercise for complicated isometrics.	4	1	-	3
12	Some exercise on the drawing of the third projection with the knowledge of the other projectors.	4	1	-	3
13	Drawing of the third projection with the knowledge of the other projectors.	4	1	-	3
14	Drawing of the third projection with the knowledge of the other projectors.	4	1	-	3
15&16	Final Exam.				

Experiment Topics: (If any)

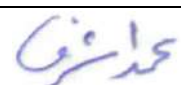
Serial	Experiment
1	Practice on computer graphics packages such as AUTOCAD, SOLIDWORKS,etc.
2	Practice on Inserting Dimensions with simple examples.

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work or quiz)	--	-	--
2	Exam 2 written (Semester work or quiz)	--	-	--
3	Midterm exam	7	30	30 %
4	Final Written Exam	15, 16	30	30 %
5	Final Practical/Clinical/... Exam	--	--	--
6	Final Oral Exam	--	-	--
7	Assignments / Project /Portfolio/ Logbook	According to the schedule.	40	40%
8	Field training	--	--	--

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	F.E. Giesecke, A.E. Mitchell, "Technical Drawing with Engineering Graphics", 15th Edition, Peach pit Press, 2016. Dennis K. Lieu, Sheryl A. Sorby, "Visualization, Modelling, and Graphics for Engineering Design", 2nd Edition, Cengage Learning Publisher, 2016. David E. Goetsch, Raymond L. Rickman, William S. Chalk, "Technical Drawing for Engineering Communication", 7th Edition, Cengage Learning Publisher, 2015.
	Other References	-Richard Shelton Kirby, The Fundamentals of Mechanical Drawing, Nabu Press, 2009. • Cecil Jensen, Jay Helselj Dennis Short, Engineering Drawing and Design, McGraw Hill, 7 th Ed., 2007
	Electronic Sources (Links must be added)	NA
	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data-show and laptop.
	Supplies	White board
	Electronic Programs	Microsoft teams
	Skill Labs/ Simulators	NA
	Virtual Labs	NA
	Other (to be mentioned)	NA

	Course Coordinator	Program Coordinator
Name	Dr. Ahmed Shaaban	Dr. Mohamed Ashraf
Signature		

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Physics (1)			
Course Code (according to the bylaw):	PHY 001			
Department/s that participated in the teaching:	<u>BASIC SCIENCES</u>			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	<u>2</u>	<u>3</u>		<u>5</u>
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Assc. Prof. Mohamed Ragab Abdo			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	7/26/2025			

2. Course Overview (Brief summary of scientific content):

Measurements: Physics and measurements - (length, mass, time, the international system of unite SI) Elastic properties of solid (stress, strain, elastic modules...) -Dynamic of ideal fluid (static and dynamic)– oscillatory motion: wave motion, sound waves, thermodynamics, temperature, heat and first law of thermodynamics, kinetic theory of gases, heat engines, entropy and the second law of thermodynamics.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS) (according to the matrix in the program specs)		Course Learning Outcomes (CLOs)	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	LO1	Identify the physical laws of the course.
		LO2	Formulate the concepts and physical phenomena of the course
		LO3	Derive the basic rules that relate to the content of the Physics 1 course.
		LO4	Solve the problems of the course.
A2	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.	LO5	Conduct experimental in lab to achieve some of the physical theories and their equations.
		LO6	Interpret the findings of experimental work to draw a conclusion.
A5	Practice research techniques and methods of investigation as an inherent part of learning.	LO7	Implement scientific reports depending on the scientific foundations of his study.
A7	Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.	LO8	Acquire the ability to work in a team
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	LO9	Share the gained knowledge orally, in writing, and graphically
A10	Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.	LO10	Acquire the ability to self-learn in application engineering physics.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
✓	✓	✓	--	--	✓	--	✓	--	--	✓	--	--	✓	--	--

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	Physical units – dimensions analysis	5	2	1	2
2	Elasticity	5	2	1	2
3	Density – pressure in fluids	5	2	1	2
4	Archimedes principle – force against the dam	5	2	1	2
5	Bernoulli's equation and its application	5	2	1	2
6	Viscosity and application – Poiseuille's law- Stock's law-	5	2	1	2
7	Revision and Mid Exam				
8	Waves and oscillations- Wave speed in stretching string – energy and power of waves	5	2	1	2

9	Dispersion and resonance of waves – standing waves	5	2	1	2
10	Sound waves – intensity and sound level – source of musical sound – beats- Doppler effect	5	2	1	2
11	Concept of temperature-Thermometers – Temperature scale - Thermal expansion – thermal stress	5	2	1	2
12	Heat capacity and specific heat – latent heat work and heat in thermodynamic process	5	2	1	2
13	The first law of thermodynamic and its application	5	2	1	2
14	Heat transfer by conduction	5	2	1	2
15,16	Final Exam.				

Experiment Topics: (If any)

Serial	Experiment
1	Measurement Instruments (Mass, Volume, Density).
2	Uniformly Accelerated Motion.
3	Centripetal Force , Torques.
4	Equilibrium, and Center of Gravity.
5	SIMPLE Harmonic Motion.
6	Fields and Equipotential.
7	The Measurement of Resistance: Ammeter.
8	Voltmeter Methods and Wheatstone Bridge Method.

5- Methods of students' assessment:

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	2	5	5%
2	Exam 2 written (Semester work)	4	5	5%
3	Midterm exam	7	20	20 %
4	Final Written Exam	15, 16	40	40 %
5	Final Practical Exam	14	10	10
6	Assignments / Project /Portfolio/ Logbook	9	20	20%

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.)	The main (essential) references	1- Ahmed Abd El Ghaffar & Mohamed Ragab & Mustafa Fadel, " Physics 1"; HTI; Available Hard copy 2- D. Halliday, R. Resnick, and J. Walker, Fundamentals of Physics, 12th ed. Wiley, 2022. 3- Raymond A. Serway, Chris Vuille, J. Hughes. College Physics Global Edition, 11th ed. Cengage Learning, 2018.
	Other References	1- I. Lyublinskaya et al., College Physics for AP Courses OpenStax. XanEdu Publishing Inc, 2022. 2- W. Sears Richards, Mark W. Zemansky, and Hung D. Young, University Physics, 6th edition, Addison – Wesley 2020
	Electronic Sources (Links must be added)	• http://hyperphysics.phy-astr.gsu.edu/hbase/index.html • https://www.physicsclassroom.com/ • https://en.wikipedia.org/wiki/Physics • https://physicsworld.com/
	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Notebook and data show equipped lecture room.
	Supplies	Whiteboard—whiteboard color pens—eraser
	Other	Scientific Videos

	Course Coordinator	Program Coordinator
Name	Asst. Prof. Mohamed Ragab Abdo	Prof. Ahmed Abd El-Gafar
Signature	<i>Asst Prof./ Mohamed Ragab Abdo</i>	

Higher Technological Institute (HTI) – 10th of Ramadan City	
Course Specification	

1. Basic Information

Course Title (according to the bylaw):	Engineering Chemistry			
Course Code (according to the bylaw):	CHM 001			
Department/s that participated in the teaching:	Chemical Engineering Dept.			
Total number of credit hours of the course: (according to the bylaw): 3	Theoretical	Practical (Lab.)	Other (Tutorial)	Total
	2	3	1	5
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Ass Prof / Soad Abdel Aziz El Metwaly			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	8/5/2025			

2. Course Overview (Brief summary of scientific content):

Equations of State - Introduction to Chemical Thermodynamics - Material & Energy Balance in Fuel Combustion and Chemical Processes - General Properties of Solutions - Dynamic Equilibrium in Physical and Chemical Processes - Basic Principles in Electrochemistry - Introduction to Corrosion Engineering - Selected topics in process Chemical Industries (Industry & Chemistry of Cement - Chemical Fertilizer Industries - Sugar Industry - Dyes & Dyeing Industry - Petrochemical Industries - Sulfuric acid Industry).

Laboratory:

1 Acid - Base Titration.

- 2 pH measurement and application in acid base titration.
- 3 Predicting heating and cooling curves and interrelating with phase diagram.
- 4 Molecular weight Determination from General Properties of Solutions.
- 5 Determination of solubility and evaluating solubility product constant (ksp).
- 6 Determination of acid and base constants for weak acids (ka) & for weak bases (kb).
- 7 Determination of Dissolved oxygen in water.
- 8 Determination of iron in cement powder.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes	
(A1, A2)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics	LO1	Calculate different parameters of gases, liquids and solutions
		LO2	Apply the fundamentals of mass and energy balances for chemical equipment in case of physical or chemical changes.
		LO3	Identify the main parameters affecting the electro-chemical cells, corrosion of metals, dynamic equilibrium, chemical engineering thermodynamics, Liquefaction of gases and others
		LO4	Understand an industrial chemical engineering process with its applications, different diagrams parameters and manufacturing steps
A2	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.	LO5	Estimate the solution concentration (different concentration definitions) from either given theoretical data or from experimental results obtained (acid/base, redox, total water hardness, etc.) by titration reactions and/or pH measurements

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology- Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
√	√	√			√		√								

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures)	Training		Other (Tasks/ Assignments/ Projects/ ...)
				Tutorial	Practical / Lab	
1	<u>Chapter1:</u> Units and dimensions - States of matter – Gases –Gas laws – Ideal gases and Kinetic theory – gas mixtures - Dalton's law	5	2	1	2	
	<u>Lab: week (1)</u> Safety instructions – Introduction to Volumetric Analysis					
2	<u>Chapter1(cont.)</u> Gases: Ideal and Real gases – Deviation from ideality – Critical states – Compressibility chart – Real gases and	5	2	1	2	

	equations of states – Van Der Waals Equation - Liquefaction of gases (basics and applications) – Joule-Thompson effect					
	Lab: week (2) Solution - Ways of expressing concentrations of solutions - Neutralization reactions					
3	Chapter 1(cont.): Performance of external work - liquefaction cycles Chapter 2: Solutions (Types of solutions – solution concentration calculations – Solubility – Factors affecting solubility - Henry's law)	5	2	1	2	
	Lab: week (3) Acid / Base Titration (SA/WB – SA/SB)					
4	Chapter 2, (cont.): Colligative properties of non-electrolytic and electrolytic solutions – Van't Hoff coefficient – Problems on colligative properties calculations	5	2	1	2	
	Lab: week (4) Titration Curves - pH measurement and application in acid - base titration					
5	Chapter 3 Dynamic Equilibrium in Physical and Chemical Processes – Equilibrium Constant - Factors affecting equilibrium.	5	2	1	2	
	Lab: week (5) Molecular weight Determination from General Properties of Solutions					

6	<u>Chapter 3, (cont.):</u> Factors affecting equilibrium (cont.) – Le Chatelier principles, Effect of temperature on equilibrium constant, Van't Hoff equation, Dynamic equilibrium applications.	5	2	1	2	
	<u>Lab:</u> Lab evaluation mid exam					
7	Revision and Mid Exam					
8	<u>Chapter 4:</u> Mass and energy balances for both: physical and chemical processes Combustion reactions – Application of different methods for heat of reaction calculations at standard conditions (Hess law- bond dissociation method - ...etc.)	5	2	1	2	
	<u>Lab: week 8</u> Cooling and Heating curves					
9	<u>Chapter 4:</u> Mass and energy balances for chemical processes, Combustion reactions, Application of different methods for heat of reaction calculations at standard conditions (Hess law- bond dissociation method - ...etc.)	5	2	1	2	
	<u>Lab: week 9</u> Determination of Dissolved oxygen in water					
10	<u>Chapter 5:</u> Electro chemistry - Redox reactions – Electro-chemical cells - Nernst equation – Corrosion Engineering: types and methods of protection.	5	2	1	2	

	Lab: week 10 Redox Titration (KMnO_4 and FeSO_4) & (I_2 and $\text{Na}_2\text{S}_2\text{O}_3$)					
11	Chapter 6: Introduction to Chemical Thermodynamics - First law of thermodynamics-Second law of thermodynamics – Thermodynamic Applications in the Chemical Engineering field	5	2	1	2	
	Lab: week 11 Determination of solubility and evaluating solubility product constant (ksp)					
12	Chapter 7: Chemical Engineering industries introduction – Block diagrams - Selected topics in process chemical industries with applications including some of the most updated chemical engineering industries in important various fields (Cement industry, Natural gas processing, sugar industry, sulfuric acid manufacture,)	5	2	1	2	
	Lab: week 12 Determination of iron in cement powder.					
13	Chapter 7: Chemical Engineering industries – Block diagram - Selected topics in process chemical industries with applications including some of the most updated chemical engineering industries in important various fields (organic, inorganic, petrochemicals and natural gas industries)	5	2	1	2	

	<u>Lab:</u> Final practical Lab.exam					
14	Chapter 7: Chemical Engineering industries – Block diagram - Selected topics in process chemical industries with applications including some of the most updated chemical engineering industries in important various fields (organic, inorganic, petrochemicals and natural gas industries)	5	2	1	2	
15,16	Final Exam.					

5. Methods of Students' Assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Midterm exam	7	20	20 %
2	Final Written Exam	15, 16	40	40 %
3	Exams (1&2) written - (Semester work)	5, 9	10	10%
4	Exam (3) practical/written - (Semester work)	4	10	10%
5	Exam (4) - Semester Final Practical Exam	13	10	10%
6	Laboratory assessments/ Assignments/ Logbook (Semester work)	Weekly	10	10%

6. Learning Resources and Supportive Facilities: *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	- Theodore L. Brown, et al, "Chemistry the Central Science", Prentice Hall Int. (Pearson International latest edition), 2021. - Shriver and Atkins', " Inorganic Chemistry", Oxford University Press, 2010. - Austin, G.T., Shreve's Chemical Process Industries, McGraw- Hill Book Co, 5th' Ed., 1984.
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	Other References	• David M. Bastidas, Corrosion and Protection of Metals, Mdpi AG, 2020 • Yatish T Shah, Chemical Energy from Natural and Synthetic Gas, 1st edition, CRC Press, 2017 • Dr. Robert Reining, Titration Handbook, Theory and Practice of Titration, 2018
	Electronic Sources (Links must be added)	-
	Learning Platforms (Links must be added)	EKB - Microsoft Office
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Lab instruments – Glassware (pipette, burette, flasks, beakers, etc.) – pH-meter – dissolved oxygen meter – water bath – thermometers – weight balances – Dryer and laboratory Furnace (110°C) and others.
	Supplies	Essential supplies
	Electronic Programs	-
	Skill Labs/ Simulators	Department laboratories
	Virtual Labs	-
	Other (to be mentioned)	Chemicals, indicators and materials necessary for different experiments

	Course Coordinator	Program Coordinator
Name	Ass. Prof. Soad Abd El.aziz El Metwally	Dr. Noha Fawzy M. El Husseiny
Signature	<i>Soad Abdel Aziz Awad</i>	<i>Noha ElHoseiny</i>

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Engineering Mechanics (1)			
Course Code (according to the bylaw):	ENG 001			
Department/s that participated in the teaching:	Mechanical Engineering			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	2	1	-	3
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Ahmed Abd El Badie			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	8/12/2025			

2. Course Overview (Brief summary of scientific content):

Introduction to engineering mechanics. Vector analysis. Force in space, moment of force, resultant of system of forces and its resultant moment. Equilibrium of particles and rigid bodies. Applications (beams, mechanism). Analysis of simple structures. Geometrical properties of surface area; centroid and moment of inertia.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS 2018) (according to the matrix in the program specs)		Course Learning Outcomes	
A1, A8, A9		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics	LO1	Recognize the types of forces, moments and the equilibrium of Rigid Body.
		LO2	Identify support reactions and subjects of centroids.
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	LO3	Evaluate the characteristics of complete free-body diagrams.
		LO4	Demonstrate effective written communication using technical terminology.
A9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	LO5	Select appropriate solutions to simplify systems of forces and moments to equivalent systems.
		LO6	Apply knowledge of mathematics to write appropriate equilibrium equations from the free-body diagram, including the support reactions on a structure.
		LO7	Analyze simple structures using computational tools.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
✓	✓	✓				✓	✓			✓					

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	Force in space, direction angles, unit vectors, rectangular components.	3	2	1	-
2	Position vector, force defined by magnitude and two points on line of action.	3	2	1	-
3	Resultant of concurrent forces, conditions of equilibrium free body diagram.	3	2	1	-
4	Examples illustrating equilibrium of a particles' linear elastic springs.	3	2	1	-
5	Force transmissibility, vector product, moment of a force about a point.	3	2	1	-
6	Couple, reduction of a system of forces to a force and a couple at point.	3	2	1	-
7	Revision and Mid Exam				
8	Rigid body equilibrium, examples.	3	2	1	-

9	Rigid body equilibrium, examples.	3	2	1	-
10	Beams, types of loads, concentrated and uniform loads, equilibrium.	3	2	1	-
11	Beams, equilibrium.	3	2	1	-
12	Properties of an area, centroid.	3	2	1	-
13	Moments of Inertia of an area.	3	2	1	-
14	Mechanism, two and three force bodies, force diagram.	3	2	1	-
15,16	Final Exam.				

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work or quiz)	4	10	10 %
2	Exam 2 written (Semester work or quiz)	10	10	10 %
3	Midterm exam	7	20	20 %
4	Final Written Exam	15, 16	40	40 %
5	Final Practical/Clinical/... Exam	--	--	--
6	Final Oral Exam	--	--	--
7	Assignments / Project /Portfolio/ Logbook	12	10	10%
8	Field training	--	--	--
9	Other (Activity)	--	10	10 %

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	- HTI Book (Engineering Mechanics (1)) J. L. Meriam, and L. G. Kraige, "Engineering Mechanics: Statics, 8th Edition", John Wiley, New York, 2016.
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		J. L. Meriam, L. G. Kraige, 2014, Engineering Mechanics, Statics, 8th Edition, John Wiley Publisher. R. C. Hibbeler, Kai Beng Yap, 2013, Engineering Mechanics, Statics, 13th Edition, Pearson Education South Asia Ltd.
	Other References	R. C. Hibbeler, "Engineering Mechanics: Statics and Dynamics, 14th Edition", Prentice-Hall, New Jersey, 2016.
	Electronic Sources (Links must be added)	NA
	Learning Platforms (Links must be added)	EKB - Microsoft office
	Supportive facilities & equipment for teaching and learning *	
	Devices/Instruments	Data-show and laptop.
	Supplies	White board
	Electronic Programs	Microsoft teams
	Skill Labs/ Simulators	NA
	Virtual Labs	NA
	Other (to be mentioned)	NA

	Course Coordinator	Program Coordinator
Name	Dr. Ahmed Abd El Badie	Dr. Mohamed Ashraf
Signature		

المعهد التكنولوجي العالي - بالعاشر من رمضان	
توصيف مقرر دراسي	

1- معلومات أساسية :

تاريخ الهندسة				اسم المقرر: (تبعاً لما ورد باللائحة)
ENG 006				كود المقرر: (تبعاً لما ورد باللائحة)
العلوم الأساسية				القسم/الأقسام العلمية التي شاركت في التدريس:
إجمالي	أخرى (تحدد)	عملي	نظري	إجمالي عدد الساعات المعتمدة للمقرر: (تبعاً لما ورد باللائحة)
1	-	-	1	
اجباري				نوع المقرر:
SOPHOMORE				المستوى الدراسي الذي قدم فيه المقرر:
الهندسة الميكانيكية				البرنامج الأكاديمي:
المعهد التكنولوجي العالي				المعهد:
أ.م.د/ أحمد معروف				اسم منسق المقرر:
مجلس القسم العلمي للبرنامج				جهة مناقشة واعتماد تقرير المقرر:
7/26/2025				تاريخ اعتماد تقرير المقرر:

2- الوصف العام للمقرر (ملخص موجز للمحتوى العلمي) :

تاريخ الحضارة وتطور التكنولوجيا الانسانيات والعلوم الاجتماعية التعليم الهندسي والتخصصات المختلفة التفكير العلمي والتحليل التدريب والتكنولوجيا منهاجيات العمل الهندسي وسلوكياته امثله تطبيقه مشروع مقرر.

3- نواتج التعلم للمقرر:

اتساق نواتج التعلم للمقرر مع مخرجات البرنامج (المعايير المتبناة)

مخرجات البرنامج / المعايير الأكاديمية المتبناة (التي يحققها المقرر تبعاً للمصفوفة في توصيف البرنامج)		نواتج التعلم للمقرر	
A5,A6,A10		A5,A6,A10	
الكود	الكود	النص	الكود
A5	A5	LO1 معرفة المسميات المتعلقة بالهندسة والتكنولوجيا.	LO1
		LO2 فهم دور الهندسة والتكنولوجيا في العصور القديمة والعصور الوسطى والحديثة وكيفية انتقال التكنولوجيا حديثاً.	
		LO3 معرفة المعايير الأساسية الواجب اتباعها من جانب المهندس ومعرفة منهجيات العمل الهندسي.	
		LO4 إدراك تطور التعليم الهندسي في مصر من عصر الحملة الفرنسية إلى عصر الاحتلال البريطاني.	
A6	A6	LO5 يقارن بين دور الهندسة والتكنولوجيا في العصور القديمة والوسطى.	LO5
		LO6 توظيف المعارف والمهارات التي حصل عليها في مجال العمل.	
		LO7 العمل بحب واتقان داخل الفريق.	
		LO8 القدرة على التفكير بطريقة علمية وهندسية.	
A10	A10	LO9 القدرة على تحليل الخبرات والتجارب الحياتية خاصة في مجال العمل.	LO9
		LO10 التمتع بمهارة حل المشكلات بطريقة هندسية.	

4- طرق التعليم والتعلم للمقرر:

التدريس المباشر		التدريس الغير مباشر										استراتيجيات التعلم بمساعدة تكنولوجيا المعلومات			
المحاضرات	التمارين العملية والتجارب	العصف الذهني	التعلم القائم على المشروعات الجماعية	استراتيجية دراسة الحالة	حل المشكلات	كتابة التقارير / الأبحاث	الحوار والمناقشة	التدريب الميداني	الزيارات الميدانية	التعلم الذاتي	التعلم بالإكتشاف	برامج المحاكاة أو النمذجة	المعمل الافتراضية	التعلم الإلكتروني	النقاء الإصطناعي في التعليم
✓		✓				✓				✓				✓	

الجدول الدراسي للمقرر:

رقم الاسبوع الدراسي	المحتوى العلمي للمقرر (موضوعات المقرر)	إجمالي عدد الساعات الأسبوعية	عدد ساعات التعلم المتوقعة		
			تدريس نظري	تدريب تمارين	أخرى (تحدد)
1	تعريف بالمقرر الدراسي ومقدمة عامة	1	1		
2	العلاقة بين الهندسة التكنولوجية والعلم	1	1		
3	تعريف الفن والفنان	1	1		
4	دور الهندسة والتكنولوجيا في العصور القديمة	1	1		
5	استغلال المواد الطبيعية	1	1		
6	دور الهندسة والتكنولوجيا خلال العصور الوسطى	1	1		
7	مراجعة وامتحان منتصف الفصل الدراسي				
8	دور علماء المسلمين في الهندسة والتكنولوجيا	1	1		
9	انتقال تكنولوجيا العصر الحديث بين الدول	1	1		
10	مشاكل نقل التكنولوجيا بين الدول	1	1		
11	مجال العمل الهندسي ومسؤولية المهندس	1	1		
12	تطور تاريخ التعليم الهندسي في مصر من عصر محمد علي وأبنائه	1	1		
13	تطور تاريخ التعليم الهندسي في مصر من عصر الحملة الفرنسية وحتى عصر الاحتلال البريطاني	1	1		
14	مراجعة عامة	1	1		
16-15	إختبارات الفصل الدراسي النهائية				

5- طرق تقييم الطلاب:

م	طرق التقييم *	توقيت التقييم المتوقع (رقم الأسبوع الدراسي)	درجات التقييم	النسبة المئوية من إجمالي درجة المقرر
1	امتحان 1 تحريري (أعمال سنة)	5	10	10 %
2	امتحان 2 تحريري (أعمال سنة)	12	10	10 %
3	امتحان منتصف الفصل الدراسي	7	20	20 %
4	امتحان نهائي تحريري	15 و 16	40	40 %
5	تكليفات / تقارير	طوال الفصل	20	20 %

6- مصادر التعلم والتسهيلات المادية:

كتاب المقرر ويتم تسليمه للطلاب في بداية الفصل	المرجع الأساسي للمقرر (لابد من كتابة البيانات كاملة وفقا لطريقة توثيق علمي)	مصادر التعلم (الكتب والمراجع العلمية وغيرها) *
1- د. مصطفى محمود سليمان: تاريخ العلوم والتكنولوجيا في العصور القديمة والوسطى، الهيئة العامة للكتاب، القاهرة 2017. برتران جيل: موسوعة تاريخ التكنولوجيا ترجمة هيثم المع 2019.	المراجع الأخرى	
تاريخ الهندسة فبراير 2025	المصادر الالكترونية (لابد من إضافة الروابط)	
EKB - Microsoft office ENG 006 مقرر تاريخ الهندسة والتكنولوجيا General Microsoft Teams	المنصة التعليمية (لابد من إضافة الرابط)	
	الأجهزة	التجهيزات التعليمية المساندة للتعليم والتعلم *
Data show, White board	المستلزمات	
Microsoft Teams	البرامج الالكترونية	
	معامل المهارات/ المحاكيات	
	المعامل الافتراضية	
	أخرى (تذكر)	

منسق البرنامج	منسق المقرر	
أ.د. أحمد عبدالغفار	أ.م.د/ أحمد معروف حسن	الإسم
		التوقيع

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	English (1)			
Course Code (according to the bylaw):	LNG 001			
Department/s that participated in the teaching:	<u>BASIC SCIENCES</u>			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	LAB	Total
	<u>1</u>		<u>2</u>	<u>3</u>
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Mai Abouzaid			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	7/26/2025			

2. Course Overview (Brief summary of scientific content):

How to talk about the people in your life - how to talk about greeting customs - how to explain who people are - how to correct a misunderstanding - writing a self -introduction - how to talk about your background - how to talk about tourism - how to describe objects - how to tell an anecdote - writing an intercultural experience - how to talk about your schooldays - how to talk about your achievements - how to offer hospitality - how to talk about your education and career - writing a CV - how to say how you feel about things - how to talk about music - how to compare and discuss preference - comparing with as - how to explain what a film is about - writing a description of a film or book - how to talk about countries and governments - how to talk about rules and laws - how to talk about stories in the news - how to talk about past events - writing a story - how to express strong feelings - how to tell and show interest in an anecdote - how to talk about people in your neighborhood (pronouns in reported speech) - how to report what people said - writing exchanging news in a personal letter - how to say how people

look - how to talk about fashion -how to talk about plans and intentions - how to express guesses - writing a letter of application - how to talk on the phone - how to talk about ability - how to report an interview - how to report a conversation - writing a report - how to make small talk -how to talk about your future - how to give advice - how to talk about unreal situations - writing an opinion - how to exchange opinion - how to talk about your shopping habits - how to talk about recent activities - how to ask about products in a shop - writing a letter of complaint - how to give and ask about directions - how to talk about holiday accommodation - how to give health advice - how to give extra information - writing a website recommendation - how to explain your point of view -how to talk about hopes and wishes - how to describe the plot of a story - how to talk about important decisions - writing a story with a moral.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes	
(A8, A9, A10)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A8	Enhance and Develop the students' abilities and awareness for appropriate analysis and interpretation to all the scientific topics written in English words.	LO1	Have a mix of skills in English Language.
		LO2	Study different grammatical Rules.
		LO3	Work effectively in team of multi-disciplinary or multi-culture.
A9	Communicate effectively, verbally and in writing with a range of audiences.	LO4	Enhance students' abilities in expressing themselves
		LO5	Apply the four skills of language freely.
A10	Acquire and apply new knowledge and practice through English language.	LO6	Express themselves in English with confidence.
		LO7	Understand English and respond correctly.

4. Course Teaching and Learning Methods:

Direct Instruction	Indirect Instruction	Information Technology-Assisted Learning
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Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
√		√				√	√			√				√	

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	UNIT ONE: How do you make a good first impression?	3	1	0	2
2	UNIT ONE: Continued...	3	1	0	2
3	UNIT TWO: What does it take to be successful?	3	1	0	2
4	UNIT TWO: Continued...	3	1	0	2
5	UNIT THREE: Do people communicate better now than in the past?	3	1	0	2
6	UNIT THREE: Continued...	3	1	0	2
7	Revision and Mid Exam				
8	UNIT FOUR: Does advertising help or harm us?	3	1	0	2
9	UNIT FOUR: Continued...	3	1	0	2
10	UNIT FIVE: How can we prevent diseases?	3	1	0	2
11	UNIT FIVE: Continued...	3	1	0	2

12	Supplementary Material and Quiz	3	1	0	2
13	Presentations	3	1	0	2
14	Final Exam.				

Experiment Topics: (If any) Laboratory Topics

Serial	Topic
1	The psychology of first impression
2	What can we learn from success and failure?
3	Who are you talking to?
4	How can advertisers change our behaviors?
5	Is it possible to be clean?

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	QUIZ 1 written (Semester work)	4	10	10%
2	QUIZ 2 written (Semester work)	11	10	10%
3	Midterm exam	7	20	20 %
4	Final Written Exam	15	40	40 %
5	Assignments (Report & Sheet)	10,12	20	20%

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	Rasha Osman & Mai M. Abouzaid, "English Language (1) for Engineering Students"; HTI; 2024, Available Hard copy.
	Other References	1-Debra Daise & Charl Norloff, Q Skills for Success. Oxford Publishing Inc, 2024. 2-Liz, Jo Mccaul & John Soars, Headway. Oxford Publishing Inc, 2023. 3-Adrian Doff, Craig Thaine & Herbert Puchta. Empower. Cambridge University Press, 2022. 4-Jeff Stranks & Peter Lewis-Jones. Cutting Edge. Cambridge University Press, 2024

	Electronic Sources (Links must be added)	https://englishworld.com/
	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Notebook and data show equipped lecture room.
	Supplies	Teaching aids and computers.
	Skill Labs/ Simulators	English Lab Room
	Other (to be mentioned)	Notebook and data show equipped lecture room.

	Course Coordinator	Program Coordinator
Name	Dr. Mai Abouzaid	Prof. Ahmed Abd El-Gafar
Signature	<i>Mai Abouzaid</i>	

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Mathematics (2)			
Course Code (according to the bylaw):	MTH 002			
Department/s that participated in the teaching:	<u>BASIC SCIENCES</u>			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	<u>2</u>	<u>2</u>		<u>4</u>
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Hanaa Eldidamony			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	7/26/2025			

2. Course Overview (Brief summary of scientific content):

Conic Sections (Parabolas - Ellipses - Hyperbolas)- Plane curve- Parametric equations and applications – Tangent Lines – arc length and surface area – Polar coordinates- Integral in polar coordinates – Polar equation of conic section- Functions of several variables- limits and continuity- partial derivatives - Chain rule, implicit differentiation- Direction derivative and the Gradient- tangent planes and normal vectors- Maxima and Minima Series - Series with positive terms (Integral test, p-series test, Basic and limit

comparison tests, ratio test)- Alternating series and absolute convergence- power series, Taylor and Maclaurin series.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes	
A1, A8, A10		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	LO1	Describe the main concept of the conic sections, Prepare technical reports for problems in the conic sections.
		LO2	Explain the principles of parametric equations and polar coordinates.
		LO3	Define the main items of partial differentiation and study its applications.
		LO4	Discuss the principles of sequences and series.
		LO5	Analyze the system of problems in the conic sections.
		LO6	Solve problems regarding parametric equations and polar coordinates.
		LO7	Demonstrate skills regarding problems on parametric equations and polar coordinates.
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	LO8	Communicate effectively in writing by demonstrating skills regarding solving problems on course.
A10	Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.	LO9	Apply problems regarding sequences and series.
		LO10	Proceed with test steps of the problems on partial differentiation and sequences and series.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
√	√			√		√				√				√	

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	Conic section	4	2	2	0
2	Parametric equations (slope, second derivative)	4	2	2	0
3	Arc length and surface area for the parametric curve	4	2	2	0
4	Polar coordinates (sketch the curve)	4	2	2	0
5	Slope, the arc length, and the surface area for the polar coordinates.	4	2	2	0
6	The conic section in polar coordinates.	4	2	2	0
7	Revision and Mid Exam				
8	Limits in two-dimension, partial differentiation.	4	2	2	0

9	Equation of a tangent plane and normal vector for a surface	4	2	2	0
10	Lagrange multipliers	4	2	2	0
11	Application on partial derivatives	4	2	2	0
12	Sequences and series(introduction)	4	2	2	0
13	Positive term series	4	2	2	0
14	Alternating series and power series, and Taylor and McLaurin	4	2	2	0
15,16	Final Exam.				

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	6	10	10%
2	Exam 2 written (Semester work)	13	10	10%
3	Midterm exam	7	20	20 %
4	Final Written Exam	15, 16	40	40 %
5	Assignments	13,14	20	20%

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	G. B. Thomas, J. Hass, C. Heil, P. Bogacki, M. D. Weir, J. L. Z. Estrugo, Thomas' Calculus. Early Transcendentals, 15th edition, Pearson, 2024. R. Larson, B. Edwards, Calculus, 12th edition, Cengage Learning, 2023. E. Mendelson, SCHAUM'S outlines Calculus, 7th edition, McGraw-Hill, 2022. G. Strang; Edwin "Jed" Herman, Calculus Volume 2, OpenStax, 2021.
	Other References	Institute book :Mathematics 2 (Available: soft copy).
	Electronic Sources (Links must be added)	Paul's Online Notes lumenlearning khanacademy (OpenStax)

		ap-calc
	Learning Platforms (Links must be added)	EKB - Microsoft office

	Course Coordinator	Program Coordinator
Name	Dr. Hanaa Eldidamony	Prof. Ahmed Abd El-Gafar
Signature	Hanaa Eldidamony	

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Engineering Mechanics (2)			
Course Code (according to the bylaw):	ENG 002			
Department/s that participated in the teaching:	Mechanical Engineering			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	2	1		3
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Ahmed Abd El Badie			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	8/12/2025			

2. Course Overview (Brief summary of scientific content):

Kinematics of particles; Position, displacement, velocity and acceleration in different coordinate systems. Kinetics of particle; equation of motion based on Newton's second law, work and energy, impulse and momentum.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS) (according to the matrix in the program specs)		Course Learning Outcomes	
A1, A2&A9		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify the appropriate tools and analytical methods in solving engineering mechanics problems.	LO1	Recognize the Rectilinear and the Curvilinear motion of particles (Position, Velocity, and acceleration).
		LO2	Define the Linear Momentum of particles, rate of change of Linear Momentum.
		LO3	Identify the equations of motion.
A2	Develop and conduct appropriate experimentation and/or simulation, analyse and interpret data, assess, and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	LO4	Resolve the equations of motion indifferent coordinates.
		LO5	Apply to the Central Impact of two Spheres
		LO6	Solve the loss of Kinetic Energy during the Impact of two Spheres.
A9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	LO7	Analyze the general curvilinear motion and projectile motion to determine position, velocity, and acceleration in various coordinate systems
		LO8	Demonstrate the concepts of Kinematics of a particle, Equations of motion in different coordinates.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
✓	✓	✓				✓	✓			✓					

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	- Kinematics of particles. - Rectilinear motion of particles	3	2	1	
2	Curvilinear motion of a particles.	3	2	1	
3	Kinetics of particles.	3	2	1	
4	Newton's Second law of motion	3	2	1	
5	Equations of motion in different coordinates.	3	2	1	
6	Projectiles	3	2	1	
7	Revision and Mid Exam				
8	Force and acceleration	3	2	1	
9	Force and acceleration	3	2	1	

10	Work and energy	3	2	1	
11	Work and energy	3	2	1	
12	Impulse, momentum and impact	3	2	1	
13	Impulse, momentum and impact	3	2	1	
14	revision	3	2	1	
15,16	Final Exam.				

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work or quiz)	4	10	10 %
2	Exam 2 written (Semester work or quiz)	10	10	10 %
3	Midterm exam	7	20	20 %
4	Final Written Exam	15, 16	40	40 %
5	Final Practical/Clinical/... Exam	--	--	--
6	Final Oral Exam	--	--	--
7	Assignments / Project /Portfolio/ Logbook	12	10	10 %
8	Field training	--	--	--
9	Other (Mention)	--	10	10 %

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method) • HTI Book Engineering Mechanics (2) • J. L. Meriam, L. G. Kraige, 2014, Engineering Mechanics, Dynamics, 8th Edition, John Wiley Publisher. • R. C. Hibbeler, "Engineering Mechanics: Statics and Dynamics, 14th Edition", Prentice-Hall, New Jersey, 2016.
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		J. L. Meriam, and L. G. Kraige, "Engineering Mechanics: Statics, 8th Edition", John Wiley, New York, 2016.
	Other References	R. C. Hibbeler, Kai Beng Yap, 2013, Engineering Mechanics, Dynamics, 13th Edition, Pearson Education South Asia Ltd.
	Electronic Sources (Links must be added)	NA
	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data-show and laptop.
	Supplies	White board
	Electronic Programs	Microsoft teams
	Skill Labs/ Simulators	NA
	Virtual Labs	NA
	Other (to be mentioned)	NA

	Course Coordinator	Program Coordinator
Name	Dr. Ahmed Abd El Badie	Dr. Mohamed Ashraf
Signature		

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Physics (2)			
Course Code (according to the bylaw):	PHY 002			
Department/s that participated in the teaching:	<u>BASIC SCIENCES</u>			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	<u>2</u>	<u>3</u>	=	<u>5</u>
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Prof. Ahmed Abdelghafar			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	7/26/2025			

2. Course Overview (Brief summary of scientific content):

Principal of heat and Thermodynamics: Temperature - heat - thermal expansion - quantity of heat - First law of thermodynamic - Entropy and the second law of thermodynamic - Car not engine - the absolute temperature scale.

Electricity and Magnetism: Electrical current and resistance - Ohm's law - electric power -semiconductors -

electromotive force - Kirchhoff's rules - Magnetic fields - Maxwell equations - Ampere's law, Maxwell's equations
- Fraday's law - Gauss's law.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS) (according to the matrix in the program specs)		Course Learning Outcomes (CLOs)	
		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	LO1	Identify the fundamental physical laws of electricity, magnetism, and modern physics.
		LO2	Formulate the advanced concepts and physical phenomena related to electromagnetism, optics, and thermodynamics.
		LO3	Derive the integral and differential forms of the laws that govern the content of the Physics 2 course.
		LO4	Solve complex, multi-step problems involving electric and magnetic fields, circuits, and wave optics.
A2	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.	LO5	Conduct experiments in the lab to verify the principles of electromagnetism and optics.
		LO6	Analyze quantitative data from experimental work to validate theoretical models and quantify uncertainty.
A5	Practice research techniques and methods of investigation as an inherent part of learning.	LO7	Compose comprehensive scientific reports that critically evaluate experimental results against established theories.
A7	Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.	LO8	Collaborate effectively as a member of a team to manage projects and solve complex problems.
A8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.	LO9	Communicate complex scientific findings orally, in writing, and through graphical representations to diverse audiences.

A10	Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.	LO10	Demonstrate the ability for self-directed learning to solve advanced problems in applied engineering physics.
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4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
✓	✓	✓	--	--	✓	--	✓	--	--	✓	--	--	✓	--	--

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	Characteristics of electric charge, electric force between multi-electric charges	5	3	1	1
2	Electric field – Electric field due to dipole, charged ring, equatorial line	5	3	1	1
3	Gauss's law and electric flux – Apply the Gauss law on spherical symmetry	5	3	1	1
4	Apply the Gauss law on cylindrical, spherical, planar symmetry, applications	5	3	1	1
5	The electric potential, equipotential surface, calculating the potential due to point and group of point charges	5	3	1	1
6	Electric potential of dipole, electric potential energy of points charge- Capacitance, Applications	5	3	1	1

7	Revision and Mid Exam				
8	Capacitors and Capacitance and Calculating the capacitance parallel plate capacitors, Applications - Calculating the capacitance of spherical and cylindrical capacitors, connection of capacitors, applications- storing energy in an electric field, capacitors with dielectric materials, applications	5	3	1	1
9		5	3	1	1
10	Dynamic electricity, Electric current, current density - electric resistivity Ohm's law, electric power in electric circuit	5	3	1	1
11		5	3	1	1
12	- Electromotive force, calculate the current in electric circuit using energy method, Kirchhoff method, potential loop rule applications	5	3	1	1
13	Hall effect, Magnetic field, Lorentz force, circular motion of charge in uniform magnetic field	5	3	1	1
14	the magnetic force affected on wire carrying electric current, applications	5	3	1	1
15,16	Final Exam.				

Experiment Topics: (If any)

Serial	Experiment
1	Latent Heats: Heats of Fusion and Vaporization of Water.
2	Latent Heats: Calibration of a Thermometer
3	Multiloop Circuits: Kirchhoffs Rules.
4	Multiloop Circuits: The Earth's Magnetic Field.
5	Multiloop Circuits: Phase Measurements and Resonance in ac Circuits.

5- Methods of students' assessment:

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work)	2	5	5%
2	Exam 2 written (Semester work)	4	5	5%
3	Midterm exam	7	20	20 %
4	Final Written Exam	15, 16	40	40 %
5	Final Practical Exam	14	10	10

6	Assignments / Project /Portfolio/ Logbook	9	20	20%
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6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.)	The main (essential) references	1- Eid Abdelbasat Eid & Ahmed Maarouf & Mohammed abdelaziz, " Physics 2"; HTI; Available Hard copy 2- D. Halliday, R. Resnick, and J. Walker, Fundamentals of Physics, 12th ed. Wiley, 2022. 3- Raymond A. Serway, Chris Vuille, J. Hughes. College Physics Global Edition, 11th ed. Cengage Learning, 2018.
	Other References	1- I. Lyublinskaya et al., College Physics for AP Courses OpenStax. XanEdu Publishing Inc, 2022. 2- W. Sears Richards, Mark W. Zemansky, and Hung D. Young, University Physics, 6th edition, Addison – Wesley 2020
	Electronic Sources (Links must be added)	• http://hyperphysics.phy-astr.gsu.edu/hbase/index.html • https://www.physicsclassroom.com/ • https://en.wikipedia.org/wiki/Physics • https://physicsworld.com/
	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning	Devices/Instruments	Notebook and data show equipped lecture room.
	Supplies	Whiteboard—whiteboard color pens—eraser
	Other	Scientific Videos

	Course Coordinator	Program Coordinator
Name	Prof. Ahmed Abdelghafar	Prof. Ahmed Abd El-Gafar
Signature	Prof. Ahmed Abdelghafar	

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Engineering Drawing and Projection (2)			
Course Code (according to the bylaw):	ENG 004			
Department/s that participated in the teaching:	Mechanical Engineering			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	1	3	--	4
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Ahmed Shaaban			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	8/12/2025			

2. Course Overview (Brief summary of scientific content):

Development. Sectioning. Drawing and joining steel frames. Assembly drawing of some mechanical parts, Reading drawings.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS) (according to the matrix in the program specs)		Course Learning Outcomes	
(A1, A3, A10)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics	LO1	Describe the fundamental concepts and theories of orthographic projections in engineering design.
		LO2	Analyze engineering components and systems using orthographic and sectional drawings.
A3	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.	LO3	Apply orthographic projection principles to create standard 2D engineering drawings.
A10	Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.	LO4	Identify machine symbols used in technical drawings.
		LO5	Assemble mechanical part configurations using engineering drawing techniques.
		LO6	Draw basic steel frame structures with standard representations of joints.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
✓	✓	✓			✓	✓	✓								

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	Review on the drawing of the third projector with the knowledge of the other projections.	4	1	-	3
2	Drawing of some exercise for third projector.	4	1	-	3
3	Drawing of some exercise for third projector	4	1	-	3
4	How to make a section in the engineering drawing.	4	1	-	3
5	Drawing of some exercise on simple section geometrics.	4	1	-	3
6	Drawing of some exercise on simple section geometrics.	4	1	-	3
7	Midterm Exam.				
8	Definition of the different types in section bodies.	4	1	-	3
9	Intersections of bodies and surfaces and development of surfaces.	4	1	-	3

10	Exercise on the intersections of bodies.	4	1	-	3
11	Identification for different of steel sections.	4	1	-	3
12	Steel construction, Symbols of electrical circuits, fasteners	4	1	-	3
13	Assembly of some mechanical components.	4	1	-	3
14	Assembly of some mechanical components.	4	1	-	3
15&16	Final Exam.				

Experiment Topics: (If any)

Serial	Experiment
1	Practice on Normal and Auxiliary Projection using Computer Drafting Packages....etc.
2	Practice on Sectioning and Documentation with simple examples.

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Course Work (Ten Exercises through 10 different weeks)	1-13	25	25 %
2	Home Work (Ten Exercises through 10 different weeks)	1-13	15	15 %
3	Midterm exam	7	30	30 %
4	Final Written Exam	15&16	30	30 %

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	-Course notes are available to the students on the copy center of the Institute and Microsoft teams. -Singh, L. P., & Singh, H. (2021). <i>Engineering drawing: Principles and applications</i> . Cambridge University Press.
	Other References	Morling, K., & Danjou, S. (2022). <i>Geometric and engineering drawing</i> . Routledge, Taylor & Francis Group.
	Electronic Sources (Links must be added)	NA

	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data- show and laptop.
	Supplies	White board
	Electronic Programs	Microsoft teams
	Skill Labs/ Simulators	-----
	Virtual Labs	-----
	Other (to be mentioned)	-----

	Course Coordinator	Program Coordinator
Name	Dr. Ahmed Sa3ban	Dr. Mohamed Ashraf
Signature		

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	English (2)			
Course Code (according to the bylaw):	<u>LNG 002</u>			
Department/s that participated in the teaching:	<u>BASIC SCIENCES</u>			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	<u>1</u>	<u>2</u>		<u>3</u>
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Mai Abouzaid			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	7/26/2025			

2. Course Overview (Brief summary of scientific content):

Question tags (check information) - futures overview - verb phrase about work (talk about future plans & make predictions) - narrative tenses - time expressions - (write a short story) if structures (1) - (write a dairy entry) - used to/get used to/would -appearance (describe appearance) - present perfect simple & continuous -adjectives with ed & ing endings - (write an informal email) - countable & uncountable nouns -food & cooking - (describe how to prepare & cook a dish) - it's time/I'd rather/ I'd better - describing personality(describe different types of people) - sequencing devices e.g. after + ing - vocabulary: law & insurance (tell a

funny story) - reflexive pronouns - (ask about & give your own beliefs & opinions), present/future modals of possibility - noises) make speculations(- in case - write a formal letter of application -adjectives & adverbs - verb phrases with take - (give a presentation about a place -present/future modals of possibility - noises - (make speculations - in case - (write a formal letter of application - adjectives& adverbs -verb phrases with take - (give a presentation about a place) - emphasis -phrasal verbs without - (compare & contrast photographs) - although /but/however/nevertheless -feelings - (talk about books -making comparisons - verb phrases about moving/ travelling - (make comparisons about places & people - have/get something else -animal expression - (talk about services - hard and hardly - (write a report of survey findings - Relative clauses -(write an article) - if Structure (2) - speaking - (talk about your regrets & resolutions).

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes	
(A8, A9, A10)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A8	Enhance and Develop the students' abilities and awareness for appropriate analysis and interpretation to all the scientific topics written in English words.	LO1	Understanding spoken english in various contexts, including lectures, conversations and media and extracting relevant information.
		LO2	Enhanceing students' abilities in expressing themselves
		LO3	Working effectively in team of multi-disciplinary or multi-culture.
A9	Communicate effectively, verbally and in writing with a range of audiences.	LO4	Mastering the grammatical structures and conventions of the English Language.
		LO5	Developing communicative competence, critical thinking and cultural awareness.
A10	Acquire and apply new knowledge and practice through English language.	LO6	Communicating ideas effectively, participating in discussions, and using appropriate pronunciation and vocabulary.
		LO7	Producing clear and coherent writing for diverse tasks, purposes and audiences, using appropriate vocabulary and grammar.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
√		√				√	√			√				√	

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			LOs covered by course
			Theoretical teaching (lectures)	Training		
				Tutorial	/ Practical Lab	
1	UNIT ONE: What makes someone admirable?	3	1	2	0	LO1
2	UNIT ONE: Continued...	3	1	2	0	LO3
3	UNIT TWO: Does school prepare you for work?	3	1	2	0	LO1
4	UNIT TWO: Continued...	3	1	2	0	LO4
5	UNIT THREE: How has technology affected your life?	3	1	2	0	LO2&LO7
6	UNIT THREE: Continued...	3	1	2	0	LO2&LO5
7	Revision and Mid Exam					
8	UNIT FOUR: : How can we make cities better places to live?	3	1	2	0	LO3 , LO4&LO5
9	UNIT FOUR: Continued...	3	1	2	0	LO6

10	UNIT FIVE: Why is it important to play?	3	1	2	0	LO5&LO6
11	UNIT FIVE: Continued...	3	1	2	0	LO5
12	Supplementary Material and Quiz	3	1	2	0	LO6
13	Presentations	3	1	2	0	LO6
14	Final Exam.					

Experiment Topics: (If any) Laboratory Topics

Serial	Topic
1	Myths of effective leadership.
2	Growing up quickly.
3	Online friendships
4	Are we responsible for the world we live in?
5	Training Chinese Athletes.

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	QUIZ 1 written (Semester work)	4	10	10%
2	QUIZ 2 written (Semester work)	11	10	10%
3	Midterm exam	7	20	20 %
4	Final Written Exam	15	40	40 %
5	Assignments (Report & Sheet)	10,12	20	20%

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	Rasha Osman & Mai M. Abouzaid, "English Language (2) for Engineering Students"; HTI; 2024, Available Hard copy.
	Other References	1-Debra Daise & Charl Norloff, Q Skills for Success. Oxford Publishing Inc, 2024.

		2-Liz, Jo Mccaul & John Soars, Headway. Oxford Publishing Inc, 2023. 3-Adrian Doff, Craig Thaine& Herbert Puchta. Empower. Cambridge University Press, 2022. 4-Jeff Stranks & Peter Lewis-Jones. Cutting Edge. Cambridge University Press, 2024
	Electronic Sources (Links must be added)	https://englishworld.com/
	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Notebook and data show equipped lecture room.
	Supplies	Teaching aids and computers.
	Skill Labs/ Simulators	English Lab Room
	Other (to be mentioned)	Notebook and data show equipped lecture room.

	Course Coordinator	Program Coordinator
Name	Dr. Mai Abouzaid	Prof. Ahmed Abd El-Gafar
Signature	<i>Mai Abouzaid</i>	

المعهد التكنولوجي العالي - بالعاشر من رمضان	
توصيف مقرر دراسي	

1- معلومات أساسية :

تربية رياضية 1				اسم المقرر: (تبعاً لما ورد باللائحة)
PHE 001				كود المقرر: (تبعاً لما ورد باللائحة)
العلوم الأساسية				القسم/الأقسام العلمية التي شاركت في التدريس:
إجمالي	أخرى (تحدد)	عملي	نظري	إجمالي عدد الساعات المعتمدة للمقرر: (تبعاً لما ورد باللائحة)
1		1	2	
اجباري				نوع المقرر:
FRESHMAN YEAR				المستوى الدراسي الذي قدم فيه المقرر:
الهندسة الميكانيكية				البرنامج الأكاديمي:
المعهد التكنولوجي العالي				المعهد:
د ايهاب جودة احمد				اسم منسق المقرر:
مجلس القسم العلمي للبرنامج				جهة مناقشة واعتماد تقرير المقرر:
7/26/2025				تاريخ اعتماد تقرير المقرر:

2- الوصف العام للمقرر (ملخص موجز للمحتوى العلمي) :

تعليم التربية البدنية ونظرياتها تأثير المقرر على إشغال وقت الفراغ وأنشطة الترفيه ، وبناء أنشطة ترفيهية في الصناعة وإصابات الملاعب وطرق العلاج.

3- نواتج التعلم للمقرر:

اتساق نواتج التعلم للمقرر مع مخرجات البرنامج (المعايير المتبناة)

مخرجات البرنامج / المعايير الأكاديمية المتبناة (التي يحققها المقرر تبعاً للمصفوفة في توصيف البرنامج)		نواتج التعلم للمقرر	
(A2,A3,A4,A5,A6,A7,A8)		عند الانتهاء من المقرر سيكون الطالب قادراً على	
الكود	النص	الكود	النص
A2	تطوير وإجراء التجارب العملية والمحاكاة، وتحليل وتفسير وتقييم النتائج، واستخدام التحليلات الإحصائية والحكم 2A الهندسي الموضوعي الستخالص النتائج.	LO1	شرح مفاهيم التربية والهندسة الرياضية ونظرياتها
		LO2	توظيف معارف ومهارات التربية الرياضية للتعامل مع إصابات الملاعب وطرق علاجها
A3	تطبيق عمليات التصميم الهندسي لإنتاج حلول فعالة من حيث التكلفة تلبي الاحتياجات النوعية مع مراعاة الجوانب العالمية والثقافية والاجتماعية والاقتصادية والبيئية والأخلاقية وغيرها من الجوانب المتسقة مع النظام والظروف وضمن مبادئ وسياق التصميم والتنمية التطوير المستدامين.	LO3	ممارسة نشاط التربية الرياضية لتأثيره الهام على صحة العامة للجسم
A4	الاستفادة من التقنيات المعاصرة، والممارسات والمعايير، وإرشادات الجودة، ومتطلبات الصحة والسلامة، والقضايا البيئية ومبادئ إدارة المخاطر	LO4	تنمية المهارات الحركية ورفع مستوى اللياقة البدنية للطلاب
		LO5	لتعرف على مستويات وقت الفراغ والأنشطة الترويحية داخل وخارج المؤسسات الترويحية
A5	ممارسة تقنيات البحث وأساليب التحقيق كجزء لا يتجزأ من التعلم.	LO6	تطوير المعارف والمعلومات حول طبيعة ونطاق شغل أوقات الفراغ في التعلم الذاتي
		LO7	إنماء الثقافة الرياضية وارتباطها بالثقافة العامة
A6	التخطيط والإشراف والرقابة علي تنفيذ المشاريع الهندسية مع مراعاة متطلبات الحرف الأخرى	LO8	ربط التربية البدنية والرياضية بمجالات الترويج والصحة العامة.
A7	العمل بكفاءة كفرد وعضو في فرق متعددة التخصصات ومتعدد الثقافات	LO9	العمل على نقل الثقافة الرياضية و كيفية شغل أوقات الفراغ بعد ساعات العمل.
A8	التواصل بفعالية بيانياً وشفاهة وكتابة مع مجموعات من الجماهير باستخدام الأدوات العصرية.	LO10	نقل المفاهيم الرياضية شفاهياً وعملياً كفرد او كفريق متكامل جميعاً

4- طرق التعليم والتعلم للمقرر:

استراتيجيات التعلم بمساعدة تكنولوجيا المعلومات	التدريس الغير مباشر	التدريس المباشر
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المحاضرات	✓	التدريس	✓	التعلم القائم على المشروعات الجماعية	✓	استراتيجية دراسة الحالة	✓	حل المشكلات	✓	كتابة التقارير / الأبحاث	✓	الحوار والمناقشة	✓	التدريب الميداني	✓	الزيارات الميدانية	✓	التعلم الذاتي	✓	التعلم بالاكشاف	✓	برامج المحاكاة أو النمذجة	✓	المعامل الافتراضية	✓	التعلم الإلكتروني	✓	النقاء الإصطناعي في التعليم	✓
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رقم الاسبوع الدراسي	المحتوى العلمي للمقرر (موضوعات المقرر)	إجمالي عدد الساعات الأسبوعية	عدد ساعات التعلم المتوقعة	
			تدريس نظري	تدريب
1	معنى ومفهوم التربية البدنية- اغراض التربية البدنية- تدريبات لياقة عامة	2	1	0
2	المصطلحات الشائعة الاستخدام في التربية البدنية – الحاجة الى التربية البدنية في عصر العولمة - تدريبات لياقة عامة	2	1	0
3	علاقة التربية البدنية والرياضية بمجالات عمليات الترويح والصحة – نظريات اللعب وممارسة الرياضة- تدريبات لياقة عامة	2	1	0
4	مفهوم وقت الفراغ – اهميته – مستوياته - تدريبات لياقة عامة	2	1	0
5	معنى الترويح –ومفهومه والانشطة الترويحية والفراغية (التعريف – انواع- الاهداف –بور المجتمع) - تدريبات لياقة عامة	2	1	0
6	المؤسسات الترويحية في المجتمع – تنظيم وإدارة النشاط الترويحي - تدريبات لياقة عامة	2	1	0
7	مراجعة وامتحان منتصف الفصل الدراسي			
8	العلاقات العامة والعلاقات الانسانية – تدريبات لياقة عامة	2	1	0
9	ما هي الهندسة الرياضية – تعريفها – اهميتها- تدريبات لياقة عامة	2	1	0
10	الهدف العلم من دراسة الهندسة الرياضية ومكونات اللياقة البدنية وعلاقتها بلهندسة الرياضية – تدريبات لياقة عامة	2	1	0
11	مراجعته عامه وتقارير واباحث – تقييم تدريبات لياقة عامه	2	1	0
12	تقارير واباحث_تدريبات لياقه عامة	2	1	0
13	إختبارات الفصل الدراسي النهائية عملي			

5- طرق تقييم الطلاب:

م	طرق التقييم *	توقيت التقييم المتوقع (رقم الأسبوع الدراسي)	درجات التقييم	النسبة المئوية من إجمالي درجة المقرر
1	ابحاث تقييمية للياقة البدنية	8_9	20	20%
2	امتحان منتصف الفصل الدراسي	7	20	20%

3	امتحان نهائي تحريري	14	30	30%
4	امتحان نهائي عملي	13	30	30%

6- مصادر التعلم والتسهيلات المادية:

المرجع الأساسي للمقرر (لابد من كتابة البيانات كاملة وفقا لطريقة توثيق علمي)	مدخل في التربية الرياضية 1	مصادر التعلم (الكتب والمراجع العلمية وغيرها) *
المراجع الأخرى	كمال صالح – حسن معوض : أسس التربية البدنية دار كمال درويش – محمد الحمامي : الترويح الرياضي في المجتمع المعاصر ، القاهرة 2021 المعارف 2022 عابده عبد العزيز : مذكرات في الترويح الرياضي 2023	
المصادر الالكترونية (لابد من إضافة الروابط)		
المنصة التعليمية (لابد من إضافة الرابط)	EKB - Microsoft office	
التجهيزات التعليمية المساندة للتعليم والتعلم *	قاعة محاضرات مجهزة المكتبات المركزية والفرعية. الوسائل التعليمية (داتا شو) وجهاز كمبيوتر محمول. مذكرة لتدريس المقرر وكشوف متابعة للطلاب	1 2 3 4

منسق المقرر	منسق البرنامج	
الإسم	د/إيهاب جودة احمد	ا.د/ أحمد عبد الغفار
التوقيع	إيهاب جودة احمد	أحمد عبد الغفار

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Principles of Production Technology and Workshop			
Course Code (according to the bylaw):	ENG 005			
Department/s that participated in the teaching:	Mechanical Engineering			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	2	4	--	6
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Hossam Ramadan			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	8/12/2025			

2. Course Overview (Brief summary of scientific content):

Engineering Materials, Manufacturing Processes: Casting and molding processes, metal forming, forming plastics, powder metallurgy; Material Joining processes: welding, soldering, brazing, riveting, joining by mechanical elements; Material removal processes, metal cutting and finishing processes; Practical training.

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS) (according to the matrix in the program specs)		Course Learning Outcomes	
(A1, A3, A10)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics.	LO1	Explain the concepts of production engineering and basics of industrial safety.
		LO2	Identify types and properties of engineering materials.
A3	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.	LO3	Describe the basics of benchmarking and apply workshop safety practices.
A10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.	LO4	Differentiate between metal casting and forming techniques using appropriate criteria
		LO5	Compare metal machining methods and justify the selection of appropriate techniques.
		LO6	Describe the basic concepts and common techniques of welding.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
✓	✓	✓		✓		✓	✓								✓

Course Schedule:

Week No.	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours		
			Theoretical teaching (lectures)	Training	
				Tutorial	/ Practical Lab
1	The concepts of production engineering and basics of industrial safety	6	2	1	3
2	Types and properties of engineering materials	6	2	1	3
3	Types and properties of engineering materials	6	2	1	3
4	Bench working	6	2	1	3
5	Metal casting	6	2	1	3
6	Metal casting	6	2	1	3
7	Revision and Mid Exam				
8	Metal forming	6	2	1	3

9	Metal forming	6	2	1	3
10	Machining	6	2	1	3
11	Machining	6	2	1	3
12	Welding	6	2	1	3
13	Welding	6	2	1	3
14	Revision	6	2	1	3
15,16	Final Exam.				

Experiment Topics: (If any)

Serial	Experiment
1	<i>Practice on standard machining operations.</i>
2	<i>Practice on standard welding operations.</i>
3	<i>Practice on standard Soldering operations</i>
4	<i>Practice on standard Brazing operations.</i>
5	<i>Practice on standard riveting operations</i>

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1 written (Semester work or quiz)	6	10	10 %
2	Exam 2 written (Semester work or quiz)	11	10	10 %
3	Midterm exam	7	20	20 %
4	Final Written Exam	15, 16	40	40 %
5	Final Practical/Clinical/... Exam	---	--	--
6	Final Oral Exam	14	10	10 %
7	Assignments / Project /Portfolio/ Logbook	14	10	10 %
8	Field training	--	--	---

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	-Lecture Notes in Production Technology (2025) - Black, Bruce. <i>Workshop processes, practices and materials</i> . Routledge, 2015.
	Other References	- SeropeKalpakjian , Steven Schmid, Manufacturing Engineering & Technology, Prentice Hall, 6th- Ed., 2009.
	Electronic Sources (Links must be added)	NA
	Learning Platforms (Links must be added)	EKB - Microsoft office
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Data-show and laptop.-Lathe, Miller, Hand Tools and welding equipment's
	Supplies	White board
	Electronic Programs	Microsoft teams
	Skill Labs/ Simulators	NA
	Virtual Labs	NA
	Other (to be mentioned)	NA

	Course Coordinator	Program Coordinator
Name	Dr. Hossam Ramadan	Dr. Mohamed Ashraf
Signature		

المعهد التكنولوجي العالي - بالعاشر من رمضان	
توصيف مقرر دراسي	

1- معلومات أساسية :

اللغة العربية	اسم المقرر: (تبعاً لما ورد باللائحة)
LNG 003	كود المقرر: (تبعاً لما ورد باللائحة)
العلوم الأساسية	القسم/الأقسام العلمية التي شاركت في التدريس:
إجمالي	إجمالي عدد الساعات المعتمدة للمقرر:
أخري (تحدد)	(تبعاً لما ورد باللائحة)
عملي	نوع المقرر:
نظري	المستوى الدراسي الذي قدم فيه المقرر:
2	البرنامج الأكاديمي:
	المعهد:
اجباري	اسم منسق المقرر:
FRESHMAN YEAR	جهة مناقشة واعتماد تقرير المقرر:
الهندسة الميكانيكية	تاريخ اعتماد تقرير المقرر:
المعهد التكنولوجي العالي	
أ.م.د. ناجي عبد العال	
مجلس القسم العلمي للبرنامج	
7/26/2025	

2- الوصف العام للمقرر (ملخص موجز للمحتوى العلمي) :

الجملة العربية بين الاسمى والخبرية – حالات الاعراب والبناء للاسماء والافعال – تقدير حركة الاعراب وإنابة بعض علاماته عن بعض – نواسخ الجملة العربية وتغيرات الجملة – الافعال الخمسة والاسماء الخمسة وصور إعرابها – اللزوم والتعدى وصورة في اعراب الافعال – حالات المنع من الصرف – صور الاضافة والمشتقات – الكشف في المعجم العربى قواعد الاملاء العربية وعلامات الترقيم الواجبة .

3- نواتج التعلم للمقرر:

اتساق نواتج التعلم للمقرر مع مخرجات البرنامج (المعايير المتبناة)

مخرجات البرنامج / المعايير الأكاديمية المتبناة (التي يحققها المقرر تبعاً للمصنوفة في توصيف البرنامج)		نواتج التعلم للمقرر	
(A2- A8- A10)		عند الانتهاء من المقرر سيكون الطالب قادراً على	
الكود	النص	الكود	النص
A 2	تطوير وإجراء التجارب العملية المناسبة أو المحاكاة، وتحليل وتفسير وتقييم النتائج، واستخدام التحليلات الإحصائية والحكم الهندسي الموضوعي لاستخلاص النتائج	LO 1	تحليل العلاقة الترابطية بين الفكر، واللغة، والثقافة، والكلام.
A 8	ممارسة تقنيات البحث وأساليب التحقيق كجزء لا يتجزأ من التعلم.	LO 2	استخدام المفاهيم اللغوية والنحوية الأساسية للغة العربية في الحياة العملية.
		LO 3	استيفاء الشروط الشكلية والموضوعية للكتابة الإدارية والفنية.
		LO 4	استعمال القواعد اللغوية الأساسية (الصوتية والصرفية والنحوية).
		LO 5	توظيف القدرات اللغوية في إيجاز المعلومات وإعادة صياغتها.
		LO 6	تحقيق الكفاءة اللغوية (الاجتماعية والاستراتيجية والنحوية).
A10	اكتساب المعارف الجديدة وتطبيقها، وممارسة استراتيجيات التعلم الذاتي وغيرها مدى الحياة.	LO 7	تطبيق القواعد العربية الصرفية والنحوية والصوتية في الاستعمال الكتابي والشفاهي.
		LO 8	توظيف الكفاءة اللغوية الأكاديمية في البحث والكتابة العلمية.
		LO 9	توظيف الكفاءة اللغوية التداولية في تشارك المعلومات وتداول مصادر المعرفة .
		LO10	توظيف القواعد العربية في ممارسة التذوق اللغوي العام.

4- طرق التعليم والتعلم المقرر:

استراتيجيات التعلم بمساعدة تكنولوجيا المعلومات	التدريس الغير مباشر	التدريس المباشر
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المحاضرات	✓	التعلم القائم على المشروعات الجامعية	✓	استراتيجية دراسة الحالة	✓	حل المشكلات	✓	كتابة التقارير / الأبحاث	✓	الحوار والمناقشة	✓	التدريب الميداني	✓	الزيارات الميدانية	✓	التعلم الذاتي	✓	التعلم بالإنترنت	✓	برامج المحاكاة أو النمذجة	✓	المعامل الافتراضية	✓	التعلم الإلكتروني	✓	الذكاء الاصطناعي في التعليم	✓
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الجدول الدراسي للمقرر:

رقم الاسبوع الدراسي	المحتوى العلمي للمقرر (موضوعات المقرر)	إجمالي عدد الساعات الأسبوعية	عدد ساعات التعلم المتوقعة	
			تدريس نظري	تدريب
0	0	2	0	0
1	- توطئة عن قضايا اللغة العربية من منظور وظيفي، وأهمية دراسة اللغة العربية، وبيان وحدات اللغة الأساسية.	2	2	0
2	علامات الإعراب، والبناء.	2	2	0
3	علامات الرفع الأصلية والفرعية، علامات النصب الأصلية والفرعية.	2	2	0
4	الأسماء المرفوعة. توابع الأسماء المرفوعة.	2	2	0
5	الأسماء المنصوبة.	2	2	0
6	توابع الأسماء المنصوبة.	2	2	0
7	مراجعة وامتحان منتصف الفصل الدراسي			
8	- الأسماء المجروزة. - توابع الأسماء المجروزة.	2	2	0
9	- همزة الوصل وهمزة القطع. - مواضع همزة القطع. - مواضع همزة الوصل.	2	2	0
10	الأعداد: - الأعداد من حيث اللفظ - العدد باعتبار المعداد	2	2	0
11	- العدد باعتبار العلامة الإعرابية. - العدد باعتبار التنكير والتأنيث.	2	2	0
12	علامات الترقيم.	2	2	0
13	كيفية كتابة الرسالة الإدارية.	2	2	0
14	مراجعة عامة	2	2	0
16-15	اختبارات الفصل الدراسي النهائية			

5- طرق تقييم الطلاب:

م	طرق التقييم *	توقيت التقييم المتوقع (رقم الأسبوع الدراسي)	درجات التقييم	النسبة المئوية من إجمالي درجة المقرر
1	امتحان 1 تحريري (أعمال سنة)	5	10	10%
2	امتحان 2 تحريري (أعمال سنة)	9	10	10%
3	امتحان منتصف الفصل الدراسي	7	20	20%
4	امتحان نهائي تحريري	14	40	40%
5	امتحان نهائي عملي	لا يوجد	----	-----
6	امتحان نهائي شفهي	11	10	10%
7	تكاليفات / مشروع / ملف الإنجاز / كتيب الأنشطة	8	10	10%

6- مصادر التعلم والتسهيلات المادية:

المرجع الأساسي للمقرر	مصادر التعلم (الكتب والمراجع العلمية وغيرها) *
ناجي عبد العال، القواعد الأساسية للغة العربية، مذكرة للمعهد التكنولوجي العالي بالعاشر من رمضان، تاريخ النشر 2024 1- كتاب النحو، محمد عبد الشافي المكاوي، دار التقوى، 2023م 2- النحو الوافي، عباس حسن، دار المعارف 3- الإملاء والترقيم في الكتابة العربية، لعبد العليم إبراهيم، مكتبة غريب . 4- النحو المصفي، د. محمد عيد، مكتبة الشباب. 5- النحو الواضح في قواعد اللغة العربية، علي الجارم، ومصطفى أمين، الدار المصرية السعودية للطباعة والنشر والتوزيع. 6- المهارات اللغوية ومعايير جودتها : ا.د جاسم علي جاسم ، دار أمجاد حنين –السعودية ، دار إبصار – القاهرة مصر ، ط1 ، 2015م. 7- تحفة النبهاء في قواعد الإملاء: محمد عثمان ،الدار المصرية للكتاب ، 2013م. 8- من الدروس النحوية :تأليف: حفي ناصف- محمد دياب – مصطفى طمطوم – محمد صالح –محمود عمر، دار إيلاف الدولية، ط 1 ، 2006م. 9- العربية لغة حياة تقرير لجنة تحديث تعليم اللغة العربية : تقرير لجنة تحديث تعليم اللغة العربية، مكتبة لسان العرب ، الإمارات العربية المتحدة.	المراجع الأخرى
المصادر الالكترونية (لابد من إضافة الروابط)	• https://www.hosoun.com/course • https://almufti arabic.net/elementor-913
المنصة التعليمية (لابد من إضافة الرابط)	https://www.ekb.eg/ar/home

الأجهزة	(داتا شو) وجهاز كمبيوتر محمول.
المستلزمات	قاعة محاضرات مجهزة
البرامج الالكترونية	-----
معامل المهارات/ المحاكيات	-----
المعامل الافتراضية	-----
أخرى (تذكر)	-----

التجهيزات
التعليمية
المساندة للتعليم
والتعلم *

منسق المقرر	منسق البرنامج	
أ.م.د. ناجي عبد العال	إ.د/ أحمد عبد الغفار	الإسم
ناجي عبد العال	أحمد عبد الغفار	التوقيع

Higher Technological Institute (HTI) – 10 th of Ramadan City	
Course Specification	

1. Basic information:

Course Title (according to the bylaw):	Introduction to Field Training			
Course Code (according to the bylaw):	FTR 031			
Department/s that participated in the teaching:	Basic Sciences			
Total number of credit hours of the course: (according to the bylaw)	Theoretical	Practical	lab	Total
			<u>18</u>	<u>18</u>
Course Type:	Compulsory			
The level to which the course was introduced:	FRESHMAN YEAR			
Academic Program:	Mechanical Engineering			
Institute:	Higher Technological Institute			
Name of Course Coordinator:	Dr. Rasha Osman			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)	The division council minute of department			
Course Specification Approval Date:	7/26/2025			

2. Course Overview (Brief summary of scientific content):

The student learns to improve his skills: Drawing and identifying various production pieces and operating the various pieces of machinery, Communication skills (Computer skills, language,.....).

3. Course Learning Outcomes CLOs :

Matrix of course learning outcomes CLOs with program outcomes POs (NARS).

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes	
(A1,A2,A4,A9,A10)		Upon completion of the course, the student will be able to:	
Code	Text	Code	Text
A1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science, and mathematics	LO1	Identify the geometric construction of different components, main parts of workshop, hand tools, workspace in MATLAB program, four skills in English language.
A2	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.	LO2	Acquire the essential practical experience in tuning a whole mechanical system to satisfy certain specific needs, practical training in workshop, computer labs, and language labs.
A4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues, and risk management principles.	LO3	Analysis the theories, equations, and applications relating to the training in engineering drawing, workshop, computer Lab. and language.
A9	Use creative, innovative, and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	LO4	Implement the scientific reports depending on the scientific foundations of his study and appraise virtual labs results and simulation projects.
A10	Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.	LO5	Transfer the gained knowledge orally, in writing, and graphically.

4. Course Teaching and Learning Methods:

Direct Instruction		Indirect Instruction										Information Technology-Assisted Learning			
Lectures	Tutorial / Practical	Brain Storming	Project based learning	Case Study	Problem Base Learning	Reports & Research	Discussion	Field Training	Site Visit	Self-Learning	Discovery Learning	Simulation Programs	Virtual labs	E-Learning	AI in Education
√	√					√		√		√					

Course Schedule:

Week No.	Scientific content of the course (Course Topics)		Total Weekly Hours	Expected number of the Learning Hours		
				Theoretical teaching (lectures)	Training	
					Tutorial	Practical Lab /
1	E.D	Orthographic Projections	18			18
	E.W	Introduction-Safety- Central Lathe				
	C.S.	Introduction to Microsoft words				
	LNG	Unit 1: Technology in Use.				
2	E.D	Orthographic Projections	18			18
	E.W	Milling - Shaper - wilding				
	C.S.	Introduction to Microsoft power point				
	LNG	Unit 2: Materials Technology				
3	E.D	Isometric & Missed view	18			18
	E.W	Sheet metal				

	C.S.	Introduction to Microsoft excel				
	LNG	Unit 3: Components and Assemblies				
4		Revision and Mid Exam				
5	E.D	Isometric &Missed view				
	E.W	Wood Working				
	C.S.	Main MATLAB windows - Variables.				
	LNG	Unit 4: Engineering Design				
6	E.D	Sections				
	E.W	Measurements-Casting				
	C.S.	Create arrays and matrices- Solving linear equations using MATLAB.				
	LNG	Unit 5: Breaking point				
7	E.D	Sections				
	E.W	Forging - Hand Working				
	C.S.	Plotting graphs using MATLAB.				
	LNG	Unit 6: Technical Developments				
8		Final Exam.				

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Final Written Exam	8	20	20 %
2	Final Oral Exam	8	20	20 %
3	Assignments / Project /Class work/ Home work	1:7	60	60%

5- Methods of students' assessment:

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Midterm exam	7	20	20 %
2	Final Written Exam	15, 16	40	40 %

6- Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference (must be written in full according to the scientific documentation method)	Available Presentation (handed to students' part by part), in each of the four sectors of the training.
	Other References	• Kenneth Morling, "Geometric and Engineering Drawing". Third edition, Elsevier Ltd, 2010. • Richard Shelton Kirby, The Fundamentals of Mechanical Drawing, Nabu Press, 2009. • Serope Kalpakjian, Steven Schmid, Manufacturing Engineering & Technology, Prentice Hall, 6th- Ed., 2009. • Bjarne Stroustrup "The C++ Programming Language ". Addison Wesley publishing Company, fourth edition, 2011. • Nicolai Josuttis "C++ Standard Library Tutorial and Reference". Addison Wesley publishing Company, second edition, 2012. • Mark Ibbotson; Jeremy Day, " Cambridge English for Engineering, Cambridge University Press, 2023.
	Electronic Sources (Links must be added)	
	Learning Platforms (Links must be added)	EKB - Microsoft office https://surl.lu/oqkjgh
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	Computers,
	Supplies	Drawing boards, Workshop equipment
	Electronic Programs	Microsoft Teams
	Skill Labs/ Simulators	Computers' lab
	Virtual Labs	
	Other (to be mentioned)	

	Course Coordinator	Program Coordinator
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Name	Dr. Rasha Osman	Prof. Ahmed Abd-EL-Ghafar
Signature	<i>Rasha Osman</i>	