AMET
ACADEMY OF MARITIME EDUCATION AND TRAINING
DEEMED TO BE UNIVERSITY
(Under Section 3 of UGC Act 1956)

Open Elective courses of 4th Semester

S.NO	Department	Open Elective courses
1.	Department of EEE	Smart Sensors
2.	Department of Mechanical Engineering	Fundamentals of welding
3.	AMET Business School	Managing People and Organisation
4.	Department of Naval Architecture and Offshore Engineering	Marine Pollution Regulations
5.	Department of Marine Biotechnology	Microbiology for Petroleum Industry
6.	Department of Petroleum Engineering	Principles of Petroleum Engineering
7.	Department of Mining Engineering	Geology for Engineers
8.	Department of Food Processing Technology	Fundamentals of Food and Nutrition
9.	Department of Information Technology	Information Technology for Office Automation
10.	Department of Mathematics	Mathematics for Competitive Exam
11.	Department of Physics	Physics in Science Fiction Movies
12.	Department of Chemistry	Green Chemistry
13.	Department of English	Creative writing
		English for career Development

PROGRAM	Common to all the BE Programmes offered in AMET (ME, Mech, EEEM, PE, HE, NA &OE, Mining) and B.Tech FPT; BBA Shipping, B.Com., LCA				
Course Code UEEEO04	Course Name: Smart Sensors	**L**	**T**	**P**	**C**
		3	0	0	3
Year / Semester	II Year / IV Semester	Contact hours per week (3 Hrs)			
Prerequisite course	NIL				
Course category	**Humanities and Social Sciences**	**Management courses**	**Professional Core**	**Professional Elective**	
	Basic Science	**Engineering Science**	**Open Elective**	**Mandatory**	
			√		
Course Objective	1. To comprehend the principles behind sensors and its behaviors. 2. To impart knowledge on various Sensors and their applications				
Course Outcome	The students will be able to 1. Outline the Principles and characteristics of sensors 2. Explain the operation of acoustic, magnetic & Mechanical sensors 3. Illustrate the concepts of radiation, thermal and chemical sensors 4. Demonstrate various biosensors and its interface systems 5. Apply the suitable sensor for real time applications Apply the knowledge of sensors in the field of electronics engineering				

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	-	-	-	-	-	-	-	-	2	2	2	-	-
CO2	3	2	3	2	2	-	-	-	-	-	2	3	3	2	2
CO3	3	3	3	3	3	-	-	-	-	-	3	2	3	2	-
CO4	2	3	3	2	-	-	-	-	-	-	2	3	2	-	3
CO5	3	3	3	3	3	-	-	-	-	-	2	3	3	3	2
CO6	3	3	3	3	3	-	-	-	-	-	3	3	3	2	2
AVERAGE	2.7	3	2.8	2.7	2.8	-	-	-	-	-	2.3	2.7	2.7	2.2	2.2
CORRELATION LEVELS				1. SLIGHT (LOW)				2. MODERATE (MEDIUM)				3. SUBSTANTIAL (HIGH)			

UNIT I : SENSOR CHARACTERISTICS AND PRINCIPLES OF SENSING 9 Hrs

Sensors classifications, Measurands, Characterization, Smart sensor systems, Physical principles of sensing: electric charges, fields, and potentials, Capacitance, magnetism, Induction, resistance, Piezoelectric effect, pyro electric effect, Hall effect, Seebeck and Peltier effects.

UNIT II : ACOUSTIC SENSORS , MAGNETIC SENSORS AND MECHANICAL SENSORS 9 Hrs

Acoustic waves, piezoelectric materials, Acoustic sensing, saw sensors. Sensor applications and future trends, Magnetic sensors: effects and materials. Integrated Hall sensors ,Magneto transistors, other magnetic transistor and future trends .Mechanical sensors: piezo resistivity , Piezo resistive sensors, Capacitive sensors

UNIT III : RADIATION SENSORS THERMAL SENSORS AND CHEMICAL SENSORS 9 Hrs

Radiation basics, HgCdTe infrared sensors, Visible-light color sensors, high-energy photodiodes, Heat transfer, thermal structures. Thermal-sensing elements Thermal and temperature sensors. Interaction of gaseous species at semiconductor Surfaces .Catalysis, the acceleration of chemical reactions, Thin-film sensor.FET devices for gas and ion sensing

UNIT IV : BIOSENSORS, ELECTRONIC INTERFACE AND INTEGRATED SENSORS 9 Hrs

Immobilization of biological elements, Transduction principles, Lab-on-chip sensors, Integrated sensors: system organization and functions, Interface electronics, Universal transducer interface, Micro technologies: introduction to microsystems engineering, Systems development: methods and tools, constructive and connective techniques

UNIT V : SENSOR APPLICATION 9 Hrs

Typical application of sensor, Weather monitoring systems, Battery monitoring Systems, Industrial automation, Building application, food industry application.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Jacob Fraden, “Handbook of Modern Sensors: Physics, Designs, and Applications”, Fourth Edition, Springer, 2010.
2. Gerard Meijer, “Smart sensor systems”, Wiley, 2008
3. Patranabis, “Sensors and Transducers”, Prentice Hall India Pvt. Ltd, New Delhi 2014

REFERENCE:

1. Patranabis, “Sensors and Transducers”, Prentice Hall India Pvt. Ltd, New Delhi 2014

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DEPARTMENT OF MECHANICAL ENGINEERING
CBCS CURRICULUM (2017-2018) (Regulation D)

Course Code	Course Name		L	T	P	C
UDMCO01	**FUNDAMENTLS OF WELDING**		**3**	**0**	**0**	**3**
(Common to All Engineering Courses)						
Year and Sem	**II / IV**	Course Type	Open Elective Course			
Prerequisite Course	Engineering Materials / Materials Science	Contact Hours per week	3 hrs			
Course Objective	1	To learn about the power sources for welding processes				
	2	To learn about fusion welding processes				
	3	To learn about solid state welding processes				
	4	To understand about special welding processes				
	5	To learn about welding metallurgy.				

Course Outcome	1	After completing this course, the students will be able to understand the power sources in welding
	2	They will be able to understand the fusion welding processes
	3	They will be able to understand solid state welding processes
	4	The students will be able to understand the special welding processes
	5	They will be able to understand the concept of welding metallurgy

UNIT I POWER SOURCES 9 Hrs

Classification of welding processes - heat sources, power sources, arc characteristics, V-I relationship, different types of electrodes, ingredients and function of electrode coverings, types of weld joints.

UNIT II FUSION WELDING PROCESSES 9 Hrs

Shielded metal arc welding, gas welding, TIG welding, MIG welding, Submerged arc welding processes

UNIT III SOLID STATE WELDING PROCESSES 9 Hrs

Resistance, friction, friction stir, ultrasonic, induction pressure, diffusion welding processes, explosive welding .

UNIT IV SPECIAL WELDING PROCESSES 9 Hrs

Document Prepared in "Board of Studies" held on	Document Approved in "Academic Council" held on
Date : 15.05.2018 .	Date : 31.05.2018 .

Electron beam, laser beam welding, plasma arc processes; advantages, limitations, Introduction to Robotic welding, underwater welding.

UNIT V WELDING METALLURGY 9 Hrs

Weld thermal cycles and their effects, effects of pre and post weld heat treatments, concept of HAZ, concept of weldability and its assessment. Welding of different materials, defects in welds, their causes and remedies.

TEXT BOOKS

1. Cornu. J.,(2004)"Advanced Welding Systems"-Volumes I, II and III, JAICO Publishers
2. Srinivasan N.K, (2004) “Welding Engineering”, Khanna publishers.

REFERENCES

1. Lancaster L.F, (1996) ‘The Physics of Welding’, Pergamon Press.
2. Welding Handbook (Section I) American Welding Society1999
3. Parmer R.S, (2005) “Welding processes”, Khanna publishers.
4. Rao P.N – (1998)"Manufacturing Technology (Foundry, Forming and Welding) II Edition", Tata McGraw Hill Pub. Co. Ltd,. New Delhi.

PROGRAM	OPEN ELECTIVE					
Course Code UEBSOE01	Course Name : Managing People and Organisation		L 3	T 0	P 0	C 3
Year and Semester	III (IV Semester)		Contact hours per week (3Hrs)			
Prerequisite course	NIL					
Course category	Humanities and Social Sciences	Management courses	Professional Core		Professional Elective	
	Basic Science	Engineering Science	Open Elective	✓	Mandatory	
Course Objective	1.To understand the scope and functions of management 2.To gain knowledge about planning and organizing To study about the directing and controlling To familiarize about the personality and its relationship with behavior 5. To understand the motivational theories					
Course Outcome	On successful completion of the course, the students will be able to					

CO	Course Outcome	BTL
CO1	Explain the role and functions of management	K2
CO2	Explain the importance of planning and organizing	K2
CO3	Examine the directing and controlling process	K4
CO4	Explain the theories and types of personality	K2
CO5	Explain the theories of motivation in business organizations	K2
CO6	Apply the functions of management and motivation for profitability	K3

Pos/ COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	2	3	3	3	3	2	3	2	2	2	3
CO2	2	3	3	-	-	-	3	2	2	2	3
CO3	3	3	-	2	3	-	3	2	2	2	3
CO4	2	-	3	3	3	-	3	-	2	2	3
CO5	3	3	3	3	3	2	3	2	2	2	3
CO6	3	3	3	3	3	2	3	3	2	2	3
Average	2.50	3.00	3.00	2.80	3.00	2.00	3.00	2.20	2.00	2.00	3.00
Correlation Levels		1. Slight (Low)			2. Moderate (Medium)			3. Substantial (High)			

UNIT 1: NATURE OF MANAGEMENT 6 Hrs.

Definition and importance of management, Functions & Process of Management, planning, organizing, staffing, leading and motivating, controlling. Managerial levels, managerial skills. Schools of Management Thought: Scientific Management School, Fayol's Contribution

UNIT 2 : PLANNING & ORGANIZING 12 Hrs.

Planning Concept, definitions and importance, types of plans, essential features of planning, principles of planning, steps in planning process, barriers in planning – Organizing principles of organization, Formal and informal organization, Line structure, Line and staff structure, Functional structure, Matrix structure, Committees, Authority, responsibility, accountability, delegation of authority, departmentation, decentralization, Span of Control.

UNIT 3 : DIRECTING & CONTROL: DIRECTING 12 Hrs.

General principles of directing, MBO, MBE models. Controlling: Definitions, importance of controlling, types & techniques of control, essentials of good control systems, budgetary and non-budgetary control – HR Audit

UNIT 4 : PERSONALITY 6 Hrs.

Introduction to Organizational Behaviour, Definition of Personality, Theories of Personality, Factors influencing Personality – Perception & factors distorting Perception, Johari's window of Self Awareness. TA.- demonstration (individual performance)

UNIT 5 : MOTIVATION 9 Hrs.

Definition, theories-Maslow, Herzberg, McClelland, Vroom's Theory, Equity Theory and Contemporary Theories, Leadership: Concept, Theories, and Styles of Leadership. Theory X and Y styles.- video clippings on motivation-advertisement, personality of political, business and social leaders

Total: 45 Hrs.

TEXT BOOKS :

Management - Theory & Practice, C.B. Gupta, Publisher: Sultan Chand & Co
Principles of Management, P.N.Tripathi, Publisher: Tata Mcgraw Hill
OrganisationalBehaviour, S.Robins, Publisher: Pearson Education

REFERENCE :

Organizational behaviour, F Luthans, Publisher: Tata McGraw Hill
Essentials of Management - Koontz and Odonell, Publisher: Tata McGraw Hill

DEPARTMENT OF NAVAL ARCHITECTURE AND OFFSHORE ENGINEERING

PROGRAM	BE-Naval Architecture & Offshore Engineering				
Course Code: UDNAO02	MARINE POLLUTION REGULATIONS	**L**	**T**	**P**	**C**
		3	0	0	3
Year and Semester	II Year (semester IV)	Contact hours per week (3Hrs)			
Prerequisite course	NIL				
Course category	**Humanities and Social Sciences**	**Management courses**	**Professional Core**	**Professional Elective**	
	Basic Science	**Engineering Science**	**Open Elective**	**Mandatory**	
			✓		
Course Objective	1. This course provides basic knowledge about marine environment. 2. To provide the classification of marine pollution. 3. To understand the measure to prevent the pollution. 4. Provide the knowledge about impact of pollution.				
Course Outcome	1. Understand the nature of pollution and its possible sources. 2. Apply the law of the sea key provisions. 3. Apply measures and understand the requirement of pollution from oil and harmful substances. 4. Understand the prevention of pollution from sewage and garbage. 5. Evaluate the air pollution from ships during the initial phase of design. 6. Assemble the learning for a safe and sound design of ships.				

POS/COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	-	-	1	-	3	3	1	2	1	-	-	2	-
CO2	3	2	-	-	2	-	-	-	-	-	2	-	-	3	-
CO3	3	2	-	-	2	-	-	-	-	-	2	-	-	3	-
CO4	2	2	-	-	1	-	-	-	1	2	2	-	-	3	-
CO5	2	2	-	-	1	-	-	-	1	2	2	-	-	3	-
CO6	3	2	-	2	3	-	1	-	1	3	3	-	-	3	-
AVERAGE	2.3	1.8	-	0.3	1.7	-	0.7	0.5	1.3	1.5	2	-	-	2.8	-

CORRELATION LEVELS	1.SLIGHT(LOW)	2.MODERATE(MEDIUM)	3.SUBSTANTIAL(HIGH)

UNIT I – INTRODUCTION

The oceans – Maritime zones; Need for marine environment protection; Sources of marine pollution.

UNIT II –THE LAW OF THE SEA

The law of the sea and marine pollution – Navigation, exclusive economic zone, continental shelf, deep seabed mining, exploitation regime, marine scientific research.

UNIT III – POLLUTION FROM OIL & HARMFUL SUBSTANCES

Prevention of pollution by oil – operational measures and accidental discharges; Double hulls standards.

Control of pollution by noxious liquid substances in bulk – discharge criteria and measures; Types of substances; residues discharge concentrations and conditions.

Prevention of pollution by harmful substances Carried by Sea in Packaged Form – requirements of

standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications; Introduction to International Maritime Dangerous Goods Code (IMDG code).

UNIT IV – POLLUTION BY SEWAGE AND GARBAGE FROM SHIP

Need for pollution control by sewage/garbage; Measures for dumping the garbage; Disinfected sewage disposal and measures.

Types of garbage onboard ships; Measures for dumping the garbage; Disposal of all form of plastics into sea.

UNIT V –PREVENTION OF AIR POLLUTION FROM SHIPS

Limits on Sulphur oxide and Nitrogen oxide emissions from ship exhausts; Designated emission control areas; Stringent standards for SOx, NOx and particulate matter; Mandatory technical and operational energy efficiency measures.

TEXT BOOKS:

1. International Maritime Organization (IMO) conventions, International Convention for the Prevention of Pollution from Ships (MARPOL), United Kingdom, 2005.
2. United Nations, United Nations Convention on the Law of the Sea, New York.
3. J.W. Doerffer, Oil Spill Response in the Marine Environment,Pergamon Press, 1992, ISBN 0-08-041000-6.

REFERENCES:

1. John H. Bates, UK Marine Pollution Law, Lloyd's of London Press, 1985, ISBN 1-85044-028-X.
2. Ricardo Beiras, Marine Pollution–Sources, Fate and Effects of Pollutants in Coastal Ecosystems, Elsevier, 2018.
3. R.B. Clark, C. Frid and M Atttrill, Marine Pollution, 4th Edition, Oxford Science Publications, 1997, ISBN 0-19-850069-6.

Designed by	" Department of Naval Architecture & Offshore Engineering"

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Department of Marine Biotechnology

Open Elective Courses – Even Semester 2020

PROGRAM	B.E. /BTech/BCom/BBA					
Course Code PFBTO01	Course Name : **Microbiology for Petroleum Industry**		**L**	**T**	**P**	**C**
			3	0	0	3
Year and Semester	II year and IV sem		Contact hours per week (3Hrs)			
Prerequisite course	Any Under Graduate degree with Engineering background					
Course category	**Humanities and Social Sciences**	**Management courses**	**Professional Core**			**Professional Elective**
	Basic Science	**Engineering Science**	**Open Elective**			**Mandatory**
			✓			
Course Objective	1. Microorganisms are inevitably associated with the petroleum industry 2. They are associated with microbially enhanced oil recovery, production of hydrocarbaon, degradation of hydrocarbons, bioindicators of hydrocarbon wealth etc. 3. This course would provide fundamental and advanced knowledge on Microbiology with special reference to petroleum industry.					
Course Outcome	At the end of the course the student will be able to :					
	1.	Outline the basic principles of microbiology.				
	2.	List out the types of compounds in petroleum and microorganisms involved in biodegradation.				
	3.	Interpret the mechanisms involved in microbially enhanced oil recovery.				
	4.	Explain the microbial degradation of hydrocarbon, quantitative estimation of hydrocarbon and biodegradation pathways.				
	5.	Extend the knowledge on inhabitant of oil reservoirs and microbial tolerants.				
	6.	Summarize the advancements for microbial degradation and microbial enhanced oil recovery.				

POS/ COS	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	2	3	2	1	2	1	-	-	-	-	-	-	-
CO2	2	2	3	4	1	1	1	-	-	-	-	-	-	-
CO3	1	2	3	3	1	1	1	-	-	-	-	-	-	-
CO4	1	1	2	2	2	1	1	-	-	-	-	-	-	-
CO5	3	2	2	3	3	2	3	-	-	-	-	-	-	-
CO6	3	3	3	3	3	2	2	-	-	-	-	-	-	-
Average	2	2	2.6	3	1.7	1.5	1.5	-	-	-	-	-	-	-

CORRELATION LEVELS	1. SLIGHT (LOW)	**2.** MODERATE (MEDIUM)	**3.** SUBSTANTIAL (HIGH)

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Department of Marine Biotechnology

Open Elective Courses – Even Semester 2020

Unit 1: Basic principles of Microbiology.

Definition and scope of microbiology- history and recent developments- General characteristics and functions of Microbes, Physical and Chemical Structures of different Microbes, Microscopy- simple and compound microscopy- Sterilization – principles - dry heat - moist heat – radiation - filtration.

Unit 2: Introduction to Petroleum Microbiology

Types of compounds in petroleum, products of compounds in petroleum, Determining/enumerating microbes in oilfields Biodegradation in oil reservoirs, Microorganisms and organic pollutants; Biodegradation, Bioremediation; Microorganisms and metal pollutants

Unit 3: Microbially Enhanced Oil Recovery:

Displacement mechanisms, microbial reservoir ecology, microbial growth models, bioclogging, wetability effect, biosurfactant production, sulfate reduction.

Unit 4: Microorganisms and Hydrocarbons:

Microbial degradation of aliphatic hydrocarbons and aromatic hydrocarbons (microorganisms involved, mon-terminal, biterminal oxidation of propane, decane, etc.) - Quantitative estimation of hydrocarbons/pesticides/organic Solvents /methane by Gas chromatography. Hydrocarbon biodegradation pathways, aerobic/anaerobic.

Unit 5: Advances in Petroleum Microbiology

Inhabitant of microbes in Oil reservoirs- Microbial tolerance to heavy metals (Pb, Hg), Biodegradation – reactions, enzymes and pathways. Biosurfactants

TEXT BOOKS

1. Pelczar TR M J Chan ECS and Kreig N R (2006). Microbiology. Fifth edition, Tata Mc Graw-Hill INC. New York.
2. Atlas RM (1999). Petroleum Microbiology. Macmillan Publishing Co

PROGRAM	B.E. Petroleum Engineering				
Course Code UDPEO02	Course Name : Principles of Petroleum Engineering	L 3	T 0	P 0	C 3
Year and Semester	II Year & IV Semester	Contact hours per week (3Hrs)			
Prerequisite course	NIL				

Course category				
	Humanities and Social Sciences	Management courses	Professional Core	Professional Elective
	Basic Science	Engineering Science	Open Elective	Mandatory
			✓	

Course Objective	1. To impart basic about petroleum 2. Improve the comprehensive knowledge about terms in Petroleum Engineering. 3. Introduction about petroleum. 4. Inputs about formation evaluation 5. Steps to evaluate and improve the production

Course Outcome	At the end of the course, the Students will be able to	
	1	Describe about Petroleum and physical and chemical properties of crude oil and gas
	2	Explain about Drilling Operations and planning of GTO
	3	Summarize about Formation Evaluation
	4	Illustrate about Well Testing
	5	Estimating reserves and material balance equation
	6	Identify the Well site operation

POS / COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3									3	2	
CO2	3	2	3	3									3	2	
CO3	2	2	2	2									2	3	2
CO4	1	22	2	2									1	2	2
CO5	1	1	1	2									1	1	
CO6	1	1	1	1									1	1	
Average	1.8333	5.16667	2	2.16667									1.8333	1.8333	2

Correlation Levels	1.Slight(Low)	2.Moderate(Medium)	3.Substantial(High)

KL-Knowledge Level:K1-Remember,K2--Understand,K3-Apply,K4-Analyse,K5-Evaluate,K6-Create : PO-Programe Outcome:
CO-Course Outcome :PSO-Programe Specific Outcome

Unit I: INTRODUCTION (9Hrs)

Earth science – Petroleum rocks and traps. Basics of reservoir, Properties of reservoir fluids.Classification of reservoir.

Unit II: DRILLING (9Hrs)

Drilling – History, types of drilling –cable tool, rotary, drilling rigs and components. Drilling fluids and functions. Casing and cementation.

Unit III: LOGGING **(9Hrs)**

Logging. Types of logging, Logging tools. Interpretation.

Unit IV: PETROLEUM EXPLOITATION
(9Hrs)

Well Testing, perforation, testing methods, well completion. Artificial lift methods.

Unit V: SURFACE EQUIPMENTS **(9Hrs)**

Processing of oil and gas. Transportation of oil and gas. Petroleum hazards. Effluent treatment.

(Total: 45Hrs)

Text Books:

1. Leverson, Geology of Petroleum, 2nd Edition 2006, CBS Publishers & Distributors
2. T.E.W. Wind, Principles of oil Well Production ,1981,Mcgraw-Hill
3. Wellsite Geological Techniques for petroleum exploration, Oxford and IBH publishing company, 1988

Reference Books

1. Geltin, Introduction to Petroleum Engineering 2nd Edition 2017,Gulf Professional Publishing

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SYLLABUS FOR UNDER GRADUATE IN ENGINEERING AND TECHNOLOGY
B.E – MINING ENGINEERING
ACADEMIC YEAR 2020-2024 (BATCH - VI)

<table>
<tr><td>PROGRAM</td><td colspan="5">BE-Mining Engineering</td></tr>
<tr><td rowspan="2">Course Code:
UDMNO44</td><td rowspan="2">COURSE NAME:
Geology for Engineers</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>3</td><td>0</td><td>0</td><td>3</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>Year and Semester</td><td colspan="2">III Year (IV Semester)</td><td colspan="3" rowspan="2">Contact hours per week

(3 Hrs)</td></tr>
<tr><td>Prerequisite course</td><td colspan="2">NIL</td></tr>
<tr><td rowspan="4">Course category</td><td>Humanities and Social Sciences</td><td>Management courses</td><td>Professional Core</td><td colspan="2">Professional Elective</td></tr>
<tr><td></td><td></td><td></td><td colspan="2"></td></tr>
<tr><td>Basic Science</td><td>Engineering Science</td><td>Open Elective</td><td colspan="2">Mandatory</td></tr>
<tr><td></td><td></td><td></td><td colspan="2"></td></tr>
<tr><td>Course Objective</td><td colspan="5">1. Describe the physical geology
2. Explain the mineral deposits in India
3. Differentiate coal and petroleum geology
4. Describe the role of geophysical prospecting methods
5. Discuss geological investigation.
6. Analyze the presence of mineral deposits</td></tr>
<tr><td>Course Outcome</td><td colspan="5">At the end of the course the student will be able to:

1. Understand the physical geology
2. Analyze the mineral deposits in india
3. Understand the coal and petroleum geology
4. Apply knowledge petrology
5. Determine the geological investigation
Understand the presence of mineral deposits.</td></tr>
</table>

POS/	PO 1	PO 2	PO 3	PO 4	PO5	PO 6	PO 7	PO 8	PO 9	PO10	PO1 1	PO12	PSO 1	PSO2	PSO 3

COS															
CO1	2	-	1	-	2	2	3	-	-	2	3	2	2	1	1
CO2	3	2	2	1	2	-	2	-	-	-	2	1	1	2	1
CO3	-	-	2	-	-	-	2	-	-	2	2	1	2	2	2
CO4	-	-	-	-	-	2	2	-	-	-	3	1	2	1	1
CO5	-	-	2	1	2	3	2	-	-	2	2	2	2	1	1
CO6	2	1	2	1	2	3	3	-	-	2	3	2	2	2	1
Average	2	1.5	2.25	1	2	2	2.33	-	-	2	2.5	1.5	1.8	1.5	1.1

Correlation Levels	1.Slight(Low)	2.Moderate(Medium)	3.Substantial(High)

KL-Knowledge Level:K1-Remember,K2--Understand,K3-Apply,K4-Analyse,K5-Evaluate,K6-Create : PO-Programe Outcome:

CO-Course Outcome :PSO-Programe Specific Outcome

UNIT I PHYSICAL GEOLOGY 9Hrs

Interior of the earth and its composition – weathering of rocks – scale of weathering – soils - landforms and processes associated with river, wind, groundwater and sea – relevance to civil engineering. Plate tectonics – Earth quakes – Seismic zones in India.

UNIT II MINEROLOGY 9Hrs

Physical properties of minerals – Quartz group, Feldspar group, Pyroxene - hypersthene and augite, Amphibole – hornblende, Mica – muscovite and biotite, Calcite, Gypsum and Clay minerals.

UNIT III PETROLOGY 9Hrs

Classification of rocks, distinction between Igneous, Sedimentary and Metamorphic rocks. Engineering properties of rocks. Description, occurrence, engineering properties, distribution and uses of Granite, Dolerite, Basalt, Sandstone, Limestone, Laterite, Shale, Quartzite, Marble, Slate, Gneiss and Schist.

UNIT IV STRUCTURAL GEOLOGY AND GEOPHYSICAL METHODS **9Hrs**

Geological maps – attitude of beds, study of structures – folds, faults and joints – relevance to civil engineering. Geophysical methods – Seismic and electrical methods for subsurface investigations.

UNIT V APPLICATION OF GEOLOGICAL INVESTIGATIONS **9Hrs**

Remote sensing for civil engineering applications; Geological conditions necessary for design and construction of Dams, Reservoirs, Tunnels, and Road cuttings - Hydrogeological investigations and mining - Coastal protection structures. Investigation of Landslides, causes and mitigation.

TOTAL:45Hrs

Text Books:

1. Parbin Singh. Geology for Engineers, IBH Publications, N. Delhi. 1991.
2. Arthur Holemess, Principles of Physical Geology, Thomas Nelson and Sons, USA, 1964.

Reference Books

1. Blyth F.G.H. and de Freitas M.H. Geology for Engineers, 7th edition, Elsevier Publications, 2006.
2. Bell F.G. Engineering Geology, Elsevier Publications, 2007.
3. Ford, W.E. Dana's Textbook of Minerology (4th edition), Wiley Eastern Ltd., N. Delhi, 1989.
4. Winter, J.D. An Introduction to Igneous and Metamorphic Petrology, Prentice Hall, N. Delhi, 2001.
5. Billings, M.P. Structural Geology, Prentice Hall Ino., N. Jersey, USA, 1972.

Designed by: "Department of Mining Engineering

PROGRAM CODE:UGA007	B.Tech Food Processing Technology				
Course Code: UDFPO12	**FUNDAMENTALS OF FOOD AND NUTRITION**	**L**	**T**	**P**	**C**
		3	0	0	3
Year and Semester	II[nd] Year (4[th]Semester)	Contact hours per week (3Hrs)			
Prerequisite course	NIL				
Course category	**Humanities and Social Sciences**	**Management courses**	**Professional Core**	**Professional Elective**	
	Basic Science	**Engineering Science**	**Open Elective**	**Mandatory**	
			√		

Course Objective	• Translate human nutrient and energy needs into daily food selection utilizing appropriate standards and guidelines. • To describe human nutrient and energy needs throughout the life span and in physical training • To distinguish sound nutritional information from unreliable nutritional information. • To provide awareness on epidemiology and malnutrition around the globe
Course Outcome	After completion of the course, the students will be able to 1. Able to describe a healthy diet and food choices, and explain why such choices will help prevent health problems 2. Able to suggest human nutrition for healthy adults 3. Able to gain knowledge on malnutrition in the country 4. Evaluate and effectively communicate accurate nutrition information with regard to cooking 5. Students can explain the significance of practices to improve nutritional quality

POS/COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	3	-	2	3	-	-	-	-	2	-	-	-
CO2	-	2	-	-	3	2	-	-	-	-	-	-	-	-	-
CO3	-	3	3	3	-	3	-	-	-	-	-	-	-	-	-
CO4	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	2	-	3	-	-	-	-	-	-	-
CO6	3	1	-	2	2	-	-	-	-	-	-	2	-	-	-
AVERAGE	2.5	2	3	2.6	2.3	2.5	3	3	-	-	-	2	-	-	-

CORRELATION LEVELS	1.SLIGHT(LOW)	2.MODERATE(MEDIUM)	3.SUBSTANTIAL(HIGH)

UNIT 1: INTRODUCTION TO FOOD AND NUTRITION 9 Hours

Basic terms used in study of food and nutrition ,Understanding relationship between food, nutritionand health. Food Groups, Food Pyramid, Food Exchange List.

UNIT II WATER AND ENERGY BALANCE (9 HOURS)

Water intake and losses, Basal metabolism- BMR, Body surface area and factors affecting BMR.

UNIT III FORMULATION OF DIETS (9 HOURS)

Classification of balanced diet; Preparation of balanced diet for various groups, Diets and disorders. Recommended dietary allowances; For various age group, According to physiological status, Athletic and sports man, Geriatric persons.

UNIT IV METHODS OF COOKING 9 Hours

Dry, moist, frying and microwave cooking, Advantages, disadvantages and the effect of various methods of cooking on foods

UNIT V: NUTRITION IMPROVEMENT OF FOODS 9 Hours

Nutrient losses in cooking and enhancing the nutritional quality of foods, Fortification of foods,

Probiotic and Prebiotic foods

Text books:

1. O R Fennema, Food Chemistry; McGraw Hill.
2. H D Belitz and W Grosch, Food Chemistry; Springer Verlag.
3. L H Meyer, Food Chemistry; AVI, New York.

References:

1. AOAC, Official Methods of Analysis of AOAC International; Washington DC
2. R S Kirk and R Sawyor, Composition and Analysis of Foods; Longman Scientific and Technical, UK.

PROGRAM	Common to Engineering, Management and Commerce			
Course Code UDITO02	Course Name : INFORMATION TECHNOLOGY FOR OFFICE AUTOMATION	**L**	**T**	**P**	**C**
		3	0	0	3

Year and Semester	II Year (semester IV)		Contact hours per week (3Hrs)	
Prerequisite course	Nil			
Course category	**Humanities and Social Sciences**	**Management courses**	**Professional Core**	**Professional Elective**
	Basic Science	**Engineering Science**	**Open Elective**	**Mandatory**
			✓	

Course Objective

1. To learn formatting and alignment using word (MS-Office).
2. To understand absolute and relative cell references in Excel.
3. To learn how to store and retrieve data using queries.
4. To know how to prepare power point presentation
5. To provide knowledge on creating Email and accessing web pages.

Course Outcome

After completion of the course, the students will be able to

1. Perform simple alignment in document
2. Utilize spreadsheet formulas to solve any engineering problems
3. Perform simple queries in database
4. Design form and report wizards in Access
5. Perform animation and transition in presentation
6. Create email and accessing web pages

POS/COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	1	1	2	-	-	-	-	-	-	-	-	-	-
CO2	3	2	2	2	1	-	-	-	-	-	-	-	-	-	-
CO3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-
CO4	3	2	2	2	1	-	-	-	-	-	-	-	-	-	-
CO5	3	2	2	2	1	-	-	-	-	-	-	-	-	-	-
CO6	3	2	2	2	1	-	-	-	-	-	-	-	-	-	-
AVERAGE	2.8	2.1	1.8	1.8	1.2	-	-	-	-	-	-	-	-	-	-

CORRELATION LEVELS	1.SLIGHT(LOW)	2.MODERATE(MEDIUM)	3.SUBSTANTIAL(HIGH)

UNIT I WORD PROCESSING 9 Hours

Introduction – Menu – Tool bar – Document – creation, editing, saving, opening- Text – editing , deleting, inserting, selection, moving, copying, converting case, find & replace, redo/undo - Formatting document – paragraph formatting – applying styles , header and footer, bullets and numbering, format painter ,line spacing – page layout – numbering pages - inserting section break – spell check - news paper column - Printing Document - page setup, inserting picture Tables - creation, editing, formatting, insertion, merging, splitting rows and columns, document with tables. Mail merge and template creation applying on business communication.

UNIT II SPREADSHEET 9 Hours

Electronic spreadsheet features, work book, work sheet, menu, cells - entering data, text, functions – selecting cell – ranges- saving work sheet- editing work sheet data – copying , cut & paste - inserting , deleting rows, columns, cell ranges- find and replace data – Formatting work sheet – Changing column width, row height , aligning data – controlling text within a cell - changing font size, style - applying border, pattern styles. Charts - different types - titles and legend, saving , moving and copying between sheets. Formulas, functions - entering formulas- cell references –functions (sum, average, if, count, max, min, sin, sumif, hyperlink) - working with pivot table. Application – Employee payroll managment

UNIT III DATABASE 9 Hours

MS Access: Introduction, Planning a Database, Starting Access, Access Screen, Creating a New Database, Creating Tables, Working with Forms, Creating queries, Finding Information in Databases, Creating Reports, Types of Reports, Printing & Print Preview – Importing data from other databases viz. MS Excel etc.

UNIT IV POWER POINT PRESENTATION 9 Hours

Create presentation – inserting pictures and images - change position or layout of pictures – Apply 3D effect, shadows, back ground fill colors, textures and pattern. – multimedia – insert sounds and movies - slide transition - introduce animated objects. Slide show set up - insert navigation to slides- presentations and URL's – apply and edit timings – create a customized slide show.

UNIT V WEB ESSENTIALS 9 Hours

Browsers and its types, internet browsing, searching - Search Engines - Portals - Social Networking sites- Blogs - viewing a webpage for public utilities, downloading and saving web documents, online payment system, Email - email id creation,compose,attach,send,inbox,spam,trash,CC,BCC,addressbook,reply& forward.

TOTAL HOURS: 45

TEXTBOOKS:

1. Joan Lambert and Curtis Frye, "Microsoft office 2016", Microsoft press, 2016.
2. Katherine Murray, "First Look Office 2010", Microsoft Corporation, 2010.
3. Professional Office Procedure by Susan H Cooperman, Printice Hall, 2010
4. Information Technology:Principles , Practices and Oppertunities by James A Senn, Printice Hall,2005.

REFERENCES:

1. Microsoft Office2007 Bible – John Walkenbach,HerbTyson,FaitheWempen,caryN.Prague,MichaelR.groh,PeterG.Aitken, and Lisa a.Bucki -Wiley India pvt.ltd.
2. A Conceptual Guide to OpenOffice.org 3 - R. Gabriel Gurley- CreateSpace Independent Publishing

Platform, 2008

3. K. Arnold and J. Gosling, “The JAVA programming language”, Third edition, Pearson Education, 2000.

PROGRAM	Non-DG(B.E/B.Tech/BBA/B.Com)				
Course Code UDCMO01	Course Name : Mathematics for Competitive Exam	L	T	P	C
		3	0	0	0
Year and Semester	II (IV Semester)	Contact hours per week (3Hrs)			
Prerequisite course	NIL				
Course category	Humanities and Social Sciences	Management courses	Professional Core	Professional Elective	
	Basic Science	Engineering Science	Open Elective	Mandatory	
			✓		
Course Objective	1. To develop the skill of reasoning applied to numerical problems. 2. To enable students to prepare for competitive examinations. 3. To develop the skill of reasoning applied to numerical problems. 4. To develop the logical reasoning in any kind of scenario. 5. To enable students to prepare for any kind interview and carrier developments.				
Course Outcome	The Students will be able to 1 understand the knowledge of finding area, surface and volume of common shapes. 2.understand and do problems in Simple interest -Compound interest 3.understand and do problems in Time ,work, Profit, loss, average and partnership 4. understandand do problems on Numbers, on Ages -Time Distance Problem ,Trains. 5.understand the Coding and Decoding tests, Analytical Reasoning tests- Calendar . 6 confidentlt participate in any competitive exam.				

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO 12
CO1	3	2	3	3	2	-	-	-	-	-	-	2
CO2	3	2	3	2	2	-	-	-	-	-	-	2
CO3	3	1	1	-	1	-	-	-	-	-	-	-
CO4	2	2	-	-	-	-	-	-	-	-	-	-
CO5	3	2	3	2	2	-	-	-	-	-	-	-
CO6	3	2	3	3	2	-	-	-	-	-	-	2
AVERAGE	**3**	**2**	**2**	**2**	**2**	-	-	-	-	-	-	1

Document Prepared "in Board of Studies'' held on Date: 23.02.2019	Document Approved in "Academic Council'' held on 13.09.2019

Unit I **(9 hours)**

H.C.F and L.C.M of Numbers -Percentage- Area of plane figures-circle, shaded portion.

Unit II **(9 hours)**

Volume and Surface Area of solid figures-Simple interest -Compound interest

Unit III **(9 hours)**

Time and workProblem–Profit and lossProblem - AverageProblem -Partnership Problem

Unit IV **(9 hours)**

Problems on Numbers,Problems on Ages -Time and DistanceProblem , Problems on Trains.

Unit IV

(9 hours)

Coding and Decoding tests, Analytical Reasoning tests- Calendar.

Text Books:

1. R.S.Aggarwal, (1989) Quantitative Aptitude. S.Chand, New Delhi, Chapter 7, 8, 27.

2 .AbhijitGuha, (2005) Quantitative Aptitude 3rd ed. Tata Mcraw –Hill Publishing Company Limited, New Delhi, Chapters 2, 17, 22, 23, 27.

3. AbhijitGuha (2005) Quantitative Aptitude 3rd ed. Tata Mcraw –Hill Publishing Company Limited, New Delhi.

Web References:

1.www.2iim.com/india_mba_iim_cat.../quant_math.shtml

2. www.onestopmba.com/cattips/materials/maths/default.asp

PROGRAM	B.E B.Tech, B.Com, B.B.A					
Course Code: UEPHO03	Course Name: **Physics in Science fiction movies**		**L**	**T**	**P**	**C**
			3	0	0	3
Year and Semester	II Year (IV Semester)		Contact hours per week 3 Hrs			
Prerequisite course	Nil					
Course category	**Humanities and Social Sciences**	**Management courses**	**Professional Core**	**Professional Elective**		
	Basic Science	**Engineering Science**	**Open Elective**	**Mandatory**		
			✓			
Course Objective	01 To understand the basic laws physics through science fiction movies 02. To understand the basics concepts of quantum mechanics and relativity . 03. To demonstrate the concept of time dilation 04. To understand the origin of universe 05. To relate material science in science fiction movies and future technology					
Course Outcome	After successful completion of the course, the students should be able to 01. Summarize the laws of Physics 02. Explain concepts of quantum mechanics 03. Describe the concept of relativity 04. Demonstrate the origin of universe and life formation 05. Demonstrate the material science for futuristic applications					

POs / COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO 3**
CO1	2	2	2	1	2	-	-	-	-	-	-	2	2	2	3
CO2	2	2	2	2	2	-	-	-	-	-	-	2	2	3	3
CO3	2	2	2	1	2	-	-	-	-	-	-	-	2	1	1
CO4	2	2	2	1	2	-	-	-	-	-	-	2	2	2	2
CO5	3	2	2	2	3	-	-	-	-	-	-	2	2	3	2
CO6	3	3	3	3	3	-	-	-	-	-	-	3	2	3	2
Avg	2.3	2.2	2.2	1.7	2.3							2.2	2.0	2.3	2.2

CORRELATION LEVELS	**1. SLIGHT (LOW)**	**2. MODERATE (MEDIUM)**	**3. SUBSTANTIAL (HIGH)**

UNIT I	**(9 Hours)**
Introduction to science fiction and science fiction movies-Laws of physics-gravitation-concepts of quantum mechanics - relativity-black holes-worm holes-Dark matter	
UNIT- II-	**(9 Hours)**
Space travel- Space mission-space craft system-Rocket launch vehicle-Mission to moon-Mars missions-space technology	
UNIT- III-	**(9 Hours)**
Time Travel-Speed of light-Introduction to Special theory of relativity and General theory of relativity-Principle of causality-concept of time travel-possibilities	
UNIT- IV-	**(9 Hours)**
Life on other planets-solar system-stellar evolution-Nebular hypothesis-Bing bang theory-Elementary particles-Introduction to grand unification theory	
UNIT –V-	**(9 Hours)**
Physics of science fiction characters- novel materials-holography and holograms-nanotechnology based sensors-artificial intelligence. sfsd	

TOTAL : 45 Hours

***Innovation**

Watch science fiction movies-Explain the basic and advanced physics concepts used in the movie plot-Debate/group discussion of possibilities of the concepts based on the existing laws of physics-videomaking/animation reviewing the particular plot for breaking laws of physics/using the laws of physics

Text Book

Arthur Beiser, 2017, Concepts of Modern Physics, 7th edition, McGraw Hill Education,1-648

REFERENCES:

01. R Feyn mann, R Leighton, M Sands, 2012, The Feyn mann Lectures on Physics, Volume 1,2,3, Pearson Education; 1st ed., New Delhi, 1-560.
02. D Halliday, R Resenic and J Walker, 2006, Fundamentals of Physics, Wiley India Pvt Ltd, 6th ed., New Delhi, 1-1216.
03. Hyper Space, 1994, Michio Kaku,Oxford university press, UK
04. The theory of Everything, 2008, Stephen Hawking, I Edition, Jaico Publishers, Mumbai,1-125
05. Brief answers to big questions, Stephen Hawking, 2018, John Murray Publishers, UK, 1-221

PROGRAM	All UG Programmes					
Course Code: UDCCO07	Course Name : MARINE CHEMISTRY		L	T	P	C
			3			3
Year and Semester			Contact hours per week 3 Hrs			
Prerequisite course	NIL					
Course category	General	Foundation	Core / Professional		Elective	
					Yes	
Course Objective	1. By the end of this lesson, the student will be able to classify the different dissolved gases in sea water. 2. By the end of this lesson, the student will be able to predict the role of biological processes in affecting oceanic carbonate system. 3. By the end of this lesson, the student will be able to describe chemical and pharmacological properties of bioactive substances in marine organisms. 4. By the end of this lesson, the student will be able to determine micro-nutrient elements (N, P, Si) in seawater. 5. By the end of this lesson, the student will be able to identify dissolved elements in the estuary.					
Course Outcome	1. List the various dissolved gases in sea water and factors affecting their concentration. 2. Demonstrate knowledge of concepts and principles of ocean acidification. 3. Analyse and evaluate biomedical aspects of marine natural products. 4. Integrate and apply the knowledge of stoichiometry of uptake and regeneration of nutrients elements. 5. Reflect on the influence heavy metals in estuaries. 6. Evaluate total findings in marine chemistry to solve engineering problems					

Total Hours: 45 Hrs

Unit 1 **9 hrs**

Dissolved gases in seawater

Dissolution of gases in seawater and their solubility; classification of dissolved gases and factors affecting their concentration in seawater; distribution of dissolved oxygen in seawater and affecting factors, AOU and oxygen minimum zone formation in the ocean, origin and consequences of ocean hypoxia.

Unit 2 **9 hrs**

Carbonate systems in the ocean

Acid base equilibria in seawater carbon dioxide system; parameters of carbonate systems and their distribution in the ocean; role of biological processes in affecting oceanic carbonate system; precipitation and dissolution of calcium carbonate in seawater, lysocline and carbonate compensation depth; Ocean acidification.

Unit 3 **9 hrs**

Chemistry of marine natural products

Biomedical Aspects; chemical and pharmacological properties of bioactive substances in marine organisms, carbohydrates and their derivatives in red and brown algae, aliphatic acids and their derivatives in marine organisms, steroids and their use as biomarkers, nitrogenous compounds in invertebrates, nucleosides from sponges, biopolymer.

Unit 4 **9 hrs**

Micronutrients in seawater

Micro-nutrient elements (N, P, Si) in seawater, their forms, distribution and seasonal variation in the ocean. Stoichiometry of uptake and regeneration of nutrients elements and AOU. Micronutrients and primary productivity.

Unit 5 **9 hrs**

Estuarine chemistry

Behavior of dissolved and particulate material during estuarine mixing, interaction among them and speciation of dissolved elements in the estuary; physico-chemical characteristic of estuarine sediment, anoxic sediments and pore water; heavy metals in estuaries and the processes affecting its distribution.

Reference books

1. Introduction to Marine Chemistry, 1971 – Riley, J.P. and Chester, R., Academic Press.

2. Chemical Oceanography (Vol.1, 2, 3 & 8), 1975 – Riley, J.P. & Skirrow, G., Academic Press.

3. Marine Chemistry, 1969 – Horne, R.A., Wiley-Interscience

4. Seawater: Its composition, properties & behaviour, 1989, 1995, 2004 – The Open University.

5. Marine Chemistry (Vol.2), 1970 – Martin, D.F., Marcel Dekker, NY.

6. Tracers in the Sea, 1982 – Broecker and Peng., Lamont-Doherty Geological Observatory, NY.

7. Marine Geochemistry, 1990, 2000 – Chester, R., Blackwell Science.

8. Chemical Oceanography, 1992 – Millero, F. J. and Sohn, M.L., CRC Press.

9. Dynamic processes in the chemistry of the upper ocean, 1986 - Burton et al., Plenum Press.

10. The chemistry of the Atmosphere and Oceans, 1978 – Holland, H.D., Wiley.

CBCS CURRICULUM (2018-19) (REGULATION-D)

<table>
<tr><td>PROGRAM</td><td colspan="5">BE (Common for ME/NA/PE//EEE/MECH/MINING/FPT)</td></tr>
<tr><td rowspan="2">Course Code:
UDLEO02</td><td rowspan="2">Creative Writing</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>0</td><td>0</td><td>2</td><td>2</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>Year and Semester</td><td colspan="2">II Year (IV Semester)</td><td colspan="3" rowspan="2">Contact hours per week
(2Hrs)</td></tr>
<tr><td>Prerequisite course</td><td colspan="2">NIL</td></tr>
<tr><td rowspan="3">Course category</td><td>Humanities and Social Sciences</td><td>Management courses</td><td>Professional Core</td><td colspan="2">Professional Elective</td></tr>
<tr><td>Yes</td><td></td><td></td><td colspan="2"></td></tr>
<tr><td>Basic Science</td><td>Engineering Science</td><td>Open Elective</td><td colspan="2">Mandatory</td></tr>
<tr><td></td><td></td><td></td><td></td><td colspan="2"></td></tr>
<tr><td>Course Objective</td><td colspan="5">1. To make the students aware of the various aspects of Creative Writing.
2. To expose and familiarize the students with English writers and their works.
3. To equip the students to attempt at practical online writing.
4. To strengthen the creative talents and writing skills.
5. To enhance free writing skills of students</td></tr>
<tr><td>Course Outcome</td><td colspan="5">At the end of the course the student will be able to:

1. To identify different poetic forms.
2. To analyze and appreciate poems and short stories.
3. To write book and film reviews.
4. To appreciate literary works.
5. To become freelance writer.</td></tr>
</table>

UNIT I PROCESS OF CREATIVE WRITING

Kinds of Writing – fiction-non-fiction - Purpose and Use – freelance writing - content writing - Mechanics of Creative writing – figurative – diction – voice - style – Structure of creative writing - composition – creativity – appropriate language

UNIT II PERSONAL ESSAYS

Definition – Types – autobiographical - Characteristics – Maturity- Self and Subject- Anti-genre - Dr. A. B. J. Abdul Kalam – Wings of Fire - Stephen Hawking – My Brief History- Of Love - Francis - Writing Practice

UNIT III POETRY

Poetry – introduction - Chief elements – theme – structure - imagery and symbols - rhythm –Lyric - Sonnet – Ode - Dramatic Monologue - Free Verse - Sample Poems - The Road Not Taken - Robert Frost - I Wandered Lonely as a Cloud - William Wordsworth - Phenomenal Woman - Maya Angelou - Digging - Seamus Heaney

UNIT IV SHORT STORY WRITING

Short Story - introduction: Characteristic features of short stories in general – plot construction - Characterization - Narrative Techniques – Birbal Stories – Sleepless Nights – Karoly Kisfaludi – The Invisible Wound.

UNIT V ONLINE BLOGGING

Mechanics of Online Writing - Facebook profiles and timeline stories – Twitter - tweets and re-tweets – E-Commerce - Reviews and Comments – web blogging - Google class and Word press - You tube – Comments and reviews.

TOTAL: 30 Hrs

Text Books

1. Abrams, M.H. A Glossary of Literary Terms. Seventh Edition.

Reference Books

1. Prasad, B & Ramadoss H P (2016) A Background to the study of English Literature: Revised Edition, Chennai: Laxmi Publications.
2. Victor Jones 1974 Creative Writing, Kent Holder and Stoughton.
3. Birkett, Julian, 1983 Word Power: A Guide to Creative Writing, London: A & C Block.
4. Siegier, Isabelle 1968 Creative Writing, New York: Barnes and Novel.

AMET
ACADEMY OF MARITIME EDUCATION AND TRAINING
DEEMED TO BE UNIVERSITY
(Under Section 3 of UGC Act 1956)

CBCS CURRICULUM (2018-19) (REGULATION-D)

PROGRAM	B.E/B.Tech				
Course Code: UDLEO01	**ENGLISH FOR CAREER DEVELOPMENT**	**L**	**T**	**P**	**C**
		3			3

Year and Semester	III Year (VI Semester)	Contact hours per week (3Hrs)		
Prerequisite course	NIL			
Course category	**Humanities and Social Sciences**	**Management courses**	**Professional Core**	**Professional Elective**
	Basic Science	**Engineering Science**	**Open Elective**	**Mandatory**
			✓	

Course Objective

1. To develop precision in oral and written communication
2. To equip students give public speaking
3. To help students write flawless English
4. To acquire the persuasive skills
5. To enable students to write competitive examinations with confidence

Course Outcome

At the end of the course the student will be able to:

1. To communicate effectively in oral and written form
2. To have confidence in making formal presentation and address in public meeting
3. To write official communication and report well
4. To have capacity in negotiating and convincing others
5. To appear for competitive examinations with self-confidence
6. To manage and lead a team effectively

PPOs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Achieve better reading and writing skills	-	-	-	-	-	3	3	-	3	3	-	3	-	-	-

Document Prepared in "Board of studies" held on 20.02.2019	Document Approved in "Academic council" held on 05.03.2019

Demonstrate efficiency to Interpret charts and technical vocabulary.	-	-	-	-	-	3	3	-	2	2	-	3	-	-	-
Demonstrate the use of Homonyms, Homograph and Homophones for error free communication	-	-	-	-	-	2	2	-	2	2	-	2	-	-	-
Discern the history of English and the usage of tenses	-	-	-	-	-	2	2	-	3	3	-	3	-	-	-
Proficiency in creative, critical, analytical and evaluative writing.	-	-	-	-	-	2	2	-	3	3	-	3	-	-	-
Acquire linguistic competence necessarily required in various life	-	-	-	-	-	3	3	-	3	3	-	3	-	-	-

situation															
AVERAGE						2.5	2.5		2.7	2.7		2.8			
CORRELATION LEVELS				1. SLIGHT (LOW)				2. MODERATE (MEDIUM)				3. SUBSTANTIAL (HIGH)			

UNIT –I SWOT Analysis

Problem solving – Assertive skills – Team work – Leadership –Strength and Weakness – Confidence building – Personal profile – Interactive strategies

UNIT –II Accuracy Development

Comprehension – Grammatical error identification – Sentence correction- Cloze test – Idiomatic expressions– Spelling/Punctuation pitfalls

UNIT- III Written and Oral communication

Presentation skills – Report Writing – Group Discussion – Debate – Job Interview – Narrating story/event– Precise writing

UNIT – IV Non-verbal Communication

Body language – Symbols – Images – Signs – Audio visual noises and gestures – Spatial language– Analogies

UNIT – V Stress and Time Management

Emotional intelligence – Handling multi task – Manage and control crisis- Prioritizing work

Reference Books:

1. Bhatnagar R P, *English for Competitive Examinations*.
2. Butterworth John, Thwaites Geoff, *Thinking Skills*.
3. Richards Jack C, *Interchange*