JECRC

Semester – I &II (All Branches)

Engineering Chemistry (CY-101)

Course Outcomes

Students would be able to:

- **CO1: Explain the impurities of water (mainly hardness) and boiler troubles.**
- **CO2: Describe processing technologies of fuel with numerical aspects of combustion of fuel.**
- **CO3: Explain polymers, lubricants & corrosion with its controlling measures.**
- **CO4: Describe the manufacturing of cement, glass & refractories with their properties and uses.**

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	L	L	L	-	L	L	-	-	L	-	-
CO2	M	L	-	-	-	-	-	-	-	-	-	-
CO3	M	L	L	L	-	-	L	-	-	L	-	-
CO4	M	L	-	-	-	-	-	-	-	-	-	-

Civil Engineering Department

Course Outcomes

Subject – EEDM **Code –CE-101**
Branch – All **Semester- I**

Upon successful completion of this course students will be able to:

CO1- Understand basic Environmental Engineering and have an idea about legislations regarding environment.

CO2 Recognize various types of pollution and associated risks and identify their control measures; also understand municipal waste treatment methods.

CO3 Recognizing engineering techniques used to manage solid waste and outline emerging and efficient technologies of waste disposal.

CO4 Understand and classify various type of natural disaster and identify preventive measures to reduce its impact and effects.

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
co 1	M	-	L	-	-	L	M	-	-	-	-	-
co 2	M	L	L	-	-	M	M	L	M	L	-	L
co 3	M	L	L	L	-	M	M	M	M	-	-	L
co 4	M	L	L	L	-	M	L	M	M	L	-	M

Nil = - **L - Low** **M – Medium** **H – High**

Jaipur Engineering College and Research Centre, Jaipur
Department of English & Humanities
Subject: Communication Skills

Code:HU-101

COURSE OUTCOMES:

Upon the successful completion of the course, the students will be:

CO1- able to express themselves better and use English for communicating in an effective manner both professionally and in real life situations.

CO2- able to write formal letters, reports and proposals, as well as speak fluently through correct usage of the various parts of speech.

CO3- able to get an exposure to the culture, values, ethics and social norms reflected in the prose and poetry of authors from around the world and respond accordingly coupled with their imagination

Subject: Communication Skills (Theory) **Code: HU- 101**

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
I	-	L	M	-	-	L	-	-	H	H	-	L
II	-	L	H	-	-	L	-	-	H	H	-	L
III	-	L	L	-	-	L	-	-	H	H	-	L

H= High **M= Medium** **L= Low**

Code: HU-103

COURSE OBJECTIVES

Upon the successful completion of the course, the students will be:

CO 1. Enable to learn and understand the essential co-relationship between 'Values' and 'Skills' to ensure persistent happiness and prosperity to exist in society, which are the primary aspirations of all human beings.

CO 2. Facilitated a holistic developmental perspective towards Self(I), body and Worldly needs; via keeping equity of human values like samman (respect), Vishwas(Trust) and sanyam(control), Swasthya(health) based on a correct understanding of Human reality (Natural Acceptance)and Existence which are essential for assessing social situations (Experimental validation).

CO 3. Able to understand a holistic understanding of plausible implications of technology and management models, professional ethics, production system in order to maintain universal ethical human conduct/order (like trust, loyalty) Co-existence human being with nature, and mutually fulfilling human behavior and enriching interaction with Nature and in turn with society

CO – PO Mapping

Subject: Human Values (Theory) **Code:HU-103**

COURSE OUTCOMES

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
CO I	-	-	H	-	-	H	M	H	M	L	-	L
CO II	-	-	L	-	-	H	L	H	H	L	-	L
CO III	-	-	M	-	-	H	H	H	L	L	-	L

H= High **M= Medium** **L= Low**

Course Outcomes

Subject – Engineering Mathematics -I **Code – MA-101**
Branch – All **Semester- I**

Upon successful completion of this course students will be able to:

CO1. Understand the concept of curve tracing using Asymptotes, Maxima Minima & Tangents & understand the basic principles of calculus.

CO2. Find the errors approximation & transformations using techniques of partial differentiation & relate it with applications of Engineering.

CO3. Apply double & triple integral techniques to find volume & area along with the use of special functions.

CO4. Understand and able to apply the concept of vector function, vector feild, scalar field, gradient, divergence and curl. Also able to apply Green's theorem, Stoke's theorem, Gauss' theorem in Engineering.

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H	H	-	-	-	-	-	-	-	L	-	L
CO2	H	H	-	-	-	-	-	-	-	L	-	L
CO3	H	H	-	-	-	-	-	-	-	L	-	L
CO4	H	H	-	-	-	-	-	-	-	L	-	L

L - Low **M - Medium** **H – High**

Course Outcomes

Subject – Fundamental of Computers **Code – CS-101**
Branch – All **Semester- I**

Upon successful completion of this course students will be able to:

CO1: Identify and analyze the input /output operation and data types.

CO2: Analyze and implement concept of decision making statements and iteration.

CO3: Implement and create user defined function.

CO4: Understand concept of low-level and high-level languages, primary and secondary memory. Also representation and conversion of numbers & alphabets

CO/PO	P O 1	PO2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12
CO1	M	L	L	L	L	L	L	-	-	L	-	M
CO2	H	M	M	M	L	M	L	-	-	L	-	M
CO3	H	H	M	H	M	L	L	-	-	L	-	H
CO4	H	L	L	L	M	L	L	-	-	M	-	H

Nil = - **L - Low** **M – Medium** **H – High**

Laboratory Outcomes
Engineering Chemistry Lab (CY-102)

Students will be able to:

- **Analyze properties of lubricants & fuel.**
- **Carryout,record and analyze the result of volumetric analysis.**

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
I	M	M	-	L	-	-	-	-	L	M	-	-
II	M	M	-	L	-	-	-	-	L	M	-	-

Course Outcomes

Subject – Computer Programming Lab **Code – CS-102**
Branch – All **Semester- I**

Upon successful completion of this course students will be able to:

CO1 Develop ability to create and execute programs (control statements) program which receives one or more input and produce output

CO2 Develop ability to create and execute the program which use user defined functions.

CO3 Develop ability to create and execute the program which uses recursion.

CO/PO	P O 1	PO2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12
CO1	M	M	H	L	-	-	-	-	M	L	-	L
CO2	M	M	H	L	-	-	-	-	M	L	-	L
CO3	M	M	H	L	-	-	-	-	M	L	-	L

Nil = - **L - Low** **M – Medium** **H – High**

LAB OBJECTIVE:

HU- 102: COMMUNICATION SKILLS LAB

- The students will be able to develop analytical frame of mind through practical exposure of life.
- The students will get encouraged to use better vocabulary in expressing themselves, speaking better.
- The students will be confident to speak in Public.

Subject: Communication Skills (LAB) **Code: HU- 102**

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
I	-	L	-	-	-	L	-	-	H	H	-	L
II	-	L	-	-	-	L	-	-	H	H	-	L
III	-	L	-	-	-	L	-	-	H	H	-	L

LAB OUTCOMES:

HU 104: HUMAN VALUES (ACTIVITIES)

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

1. Inculcate among themselves the awareness towards their capabilities of accepting, realizing and differentiating the basic needs of both the body and the soul, essential for good health and practicing ethical behavior in their profession.
2. Evaluate themselves in terms of respect, trust, competence, their mutual fulfilment with the four orders of Nature through a series of narration of some decisive incidents of their own life, skits, stories, poems etc., paving way for understanding the environment and sustainability.
3. Use their human values and human knowledge for moving towards the universal human order, serving the society through minor project work for the betterment of society.

Subject: Human Values (Lab) **Code: HU-104**

COURSE OUTCOMES

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
CO I	-	-	L	-	-	H	H	H	L	L	-	L
CO II	-	-	L	-	-	H	H	H	L	L	-	L
CO III	-	-	L	-	-	H	H	H	L	L	-	L

1st Sem

SUBJECT	COURSE OUTCOME	Engineering Knowledge	Problem analysis	Design/Development of Solution	Conduct Investigation of complex Problems	Modern Tool Usage	The engineer and society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management and Finance	Life-long Learning
ME-101 WORKSHOP PRACTICE	To select the appropriate tools required for specific operation.	H	L	-	-	-	L	-	-	-	-	-	L
	To acquire skills in basic engineering practice.	H	M	M	L	-	L	L	-	M	L	L	M

1st Sem

JAIPUR ENGINEERING COLLEGE & RESEARCH CENTRE

DEPARTMENT OF MECHANICAL ENGINEERING

SUBJECT: Computer Aided Engineering Graphics(CE102) **For All Baranch**

COs mapping with Pos

SUBJECT	COURSE OUTCOME	Engineering Knowledge	Problem analysis	Design/Development of Solution	Conduct Investigation of complex Problems	Modern Tool Usage	The engineer and society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management and Finance	Life-long Learning
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Computer Aided Engineering Graphics (CE - 102)	CO1: To draw objects in First and third angle and in different scale.	H	-	-	-	M	-	-	-	-	M	-	M
	CO2:To diff. in between actual and true length and reading Product design.	H	-	-	-	M	-	-	-	-	M	-	M

H= High **M= Medium** **L= Low**

JECRC, Department of Physics

Course Outcomes of Engineering Physics (PY-101) for the Session 2017-18 (Semester-I&II)

1) Student will be able to apply the concept of interference, diffraction, and polarization to manufacture various devices based on it e.g. (Thin film coating) in solar cell in (photovoltaic technology), Recording 3D film in interference pattern which when displayed by polarization phenomenon (by Polaroid) and also the study of optical spectra of light source through plane diffraction grating.

2) Student will be able to select the material for specific application using Hall' s effects and Bragg' s Law for determine inter atomic distances in crystals and its types, and also able to use the basic concept of quantum theory e.g. Schrödinger's wave equation and its application for time dependent and time- independent in 1D and 3D case.

3) Students will able to use the concept of coherence and optical fiber e.g. transmission and communication in laboratories, in medical sciences, in military and defence, life sciences and high energy solar cells. Laser & holography e.g. Lasic laser eye surgery, dental implants, tool and die making. Holography e. g. 3-D films production and display, human brain surgery by 3-D microscope, trade show, engineering and architecture.

8.5.1 MAPPING OF CO & PO (Theory)

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	L	L	-	-	-	-	-	L	L	-	L
CO2	M	L	L	-	-	-	-	-	L	L	-	L
CO3	M	L	L	-	-	L	-	-	L	L	-	L

Nil = - L - Low M – Medium H – High

JECRC, Department of Physics

Course Outcomes of Engineering Physics Lab for the Session 2017-18 (Semester-I&II)

1. Students will be able to operate the various devices for the multifarious use in the relative fields e.g. to apply the application of interference of light to determine the wavelength of monochromatic light by Newton's rings, to apply the knowledge of diffraction of light to determine the wavelength of prominent lines of Mercury vapour lamp by plane diffraction grating with the help of spectrometer and also apply the concept of polarization to determine the specific rotation of sugar by polarimeter.

2. Students will be able to understand the basic principles of semiconductor & capacitors to perform the experiment energy band gap of semiconductor of a p-n junction by reverse bias, charging and discharging of capacitor to determine the time constant (t = RC) by graph and also apply the concept of optics and electrical and electronics to perform; He-Ne Laser experiment to determine the wavelength, coherence length, coherence time. Resolving power of telescope, dispersive power of material (prism) using spectrometer, to determine the height of building using sextant, also specific resistance of a wire using Carey Foster's bridge, V-I charactertices of p-n junction diode.

8.5.1 MAPPING OF CO & PO (Lab.)

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	L	L	-	-	L	-	-	L	L	-	M
CO2	M	L	L	-	-	-	-	-	L	L	-	M

Nil = - L - Low M – Medium H – High

JECRC

Semester – I &II (All Branches)

Engineering Chemistry (CY-101)

Course Outcomes

Students would be able to:

- **CO1: Explain the impurities of water (mainly hardness) and boiler troubles.**
- **CO2: Describe processing technologies of fuel with numerical aspects of combustion of fuel.**
- **CO3: Explain polymers, lubricants & corrosion with its controlling measures.**
- **CO4: Describe the manufacturing of cement, glass & refractories with their properties and uses.**

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	L	L	L	-	L	L	-	-	L	-	-
CO2	M	L	-	-	-	-	-	-	-	-	-	-
CO3	M	L	L	L	-	-	L	-	-	L	-	-
CO4	M	L	-	-	-	-	-	-	-	-	-	-

Course Outcomes

Subject – Basic Civil Engineering **Code – CE 103**
Branch – All **Semester- II**

Upon successful completion of this course students will be able to:

CO1 Understand and classify branches of Civil Engineering.

CO2 Understand building construction technology and identify construction materials along with sustainable construction technology with focus on Green buildings.

CO3 Comparing various surveying methods and understanding its principles along with the latest technological advancements in surveying.

CO4 Understand about traffic, road safety and various type of roads and railway systems along with road and vehicular characteristics required at obtaining a consistent and efficient traffic system

CO-PO Mapping

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**L**	**L**	**-**	**-**	**-**	**-**	**L**	**-**	**-**	**-**	-	-
CO2	**M**	**L**	**L**	**-**	**-**	**-**	**L**	**-**	**L**	**-**	L	L
CO3	**M**	**L**	**L**	**-**	**-**	**-**	**-**	**-**	**L**	**-**	L	-
CO4	**L**	**L**	**-**	**-**	**-**	**L**	**-**	**L**	**L**	**L**	-	-
Average												

Nil = - **L - Low** **M – Medium** **H – High**

Jaipur Engineering College and Research Centre, Jaipur
Department of English & Humanities
Subject: Communication Skills (THEORY)

Code: HU-101
COURSE OUTCOMES:

Upon the successful completion of the course, the students will be:

CO1- able to express themselves better and use English for communicating in an effective manner both professionally and in real life situations.

CO2- able to write formal letters, reports and proposals, as well as speak fluently through correct usage of the various parts of speech.

CO3- able to get an exposure to the culture, values, ethics and social norms reflected in the prose and poetry of authors from around the world and respond accordingly coupled with their imagination

Subject: Communication Skills (Theory) **Code: HU- 101**

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
I	-	L	M	-	-	L	-	-	H	H	-	L
II	-	L	H	-	-	L	-	-	H	H	-	L
III	-	L	L	-	-	L	-	-	H	H	-	L

H= High **M= Medium** **L= Low**

Jaipur Engineering College and Research Centre, Jaipur
Department of English & Humanities
Subject: Human Values (THEORY)

Code: HU-103

COURSE OBJECTIVES

Upon the successful completion of the course, the students will be:

CO 1. Enable to learn and understand the essential co-relationship between 'Values' and 'Skills' to ensure persistent happiness and prosperity to exist in society, which are the primary aspirations of all human beings.

CO 2. Facilitated a holistic developmental perspective towards Self(I), body and Worldly needs; via keeping equity of human values like samman (respect), Vishwas(Trust) and sanyam(control), Swasthya(health) based on a correct understanding of Human reality (Natural Acceptance)and Existence which are essential for assessing social situations (Experimental validation).

CO 3. Able to understand a holistic understanding of plausible implications of technology and management models, professional ethics, production system in order to maintain universal ethical human conduct/order (like trust, loyalty) Co-existence human being with nature, and mutually fulfilling human behavior and enriching interaction with Nature and in turn with society

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
CO I	-	-	H	-	-	H	M	H	M	L	-	L
CO II	-	-	L	-	-	H	L	H	H	L	-	L
CO III	-	-	M	-	-	H	H	H	L	L	-	L

H= High **M= Medium** **L= Low**

Jaipur Engineering College and Research Centre, Jaipur
Department of Mathematics
Subject: Engineering Mathematics-II

Code: MA- 102
COURSE OUTCOMES:

Upon successful completion of this course students will be able to:

CO1. Understand the concept of Linear Algebra. Matrices and its rank, inverse and solve linear simultaneous equations using them.

CO2. Understand the fundamentals of Fourier series and be able to give Fourier expansion of a given function with its applications in Engineering.

CO3. Solve ordinary differential equations of first & second order by various methods and to solve partial differential equation of first & second order with its applications in wave, diffusion & heat equations.

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H	H	-	-	-	-	-	-	-	L	-	L
CO2	H	H	-	-	-	-	-	-	-	L	-	L
CO3	H	H	-	-	-	-	-	-	-	L	-	L
CO4	H	H	-	-	-	-	-	-	-	L	-	L

Course Outcomes

Subject – Fundamental of Computers **Code – CS-103**
Branch – All **Semester- II**

Upon successful completion of this course students will be able to:

CO1: Identify and analyze Arrays, Pointers and Strings in 'C'.

CO2: Analyze software, firmware and peripherals. Also analyze and apply memory allocation through calloc, malloc and free in 'C'

CO3: Analyze Data handling through Structure, Union.

CO4: Analyze and apply Graphics using ‘C and’ Files in ‘C’.

CO/PO	P O 1	PO2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12
CO1	M	L	M	H	M	L	M	-	-	L	-	L
CO2	M	L	L	L	M	H	H	-	-	H	-	M
CO3	M	H	L	M	L	L	L	-	-	L	-	L
CO4	H	M	M	H	H	M	M	-	-	H	-	H

Nil = - **L - Low** **M – Medium** **H – High**

SUBJECT	**Course Outcome**	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
ME-102: Basic Mechanical Engg.	To describe the importance of mechanical engineering in any industry and to apply the various concepts in thermal based industry.	**H**			**H**			**M**			**M**		**L**
	To understand the various machines and power transmission related to it and also the effect of parameters on a job.	**H**			**H**			**L**			**M**		**L**
	To relate the industrial issues with the environment and to consider key concepts in in engineering materials	**M**			**H**		**L**			**M**			**H**
	To come across new practices and researches going in mechanical engineering line CAD, CAM etc.			**H**		**H**		**M**	**M**		**L**		**L**

JAIPUR ENGINEERING COLLEGE & RESEARCH CENTRE

DEPARTMENT OF MECHANICAL ENGINEERING

SUBJECT: Computer Aided Machine Drawing [ME-104]
For All Branch

COs mapping with Pos

SUBJECT	COURSE OUTCOME	Engineering	Problem analysis	Design/Development	Conduct Investigation	Modern Tool Usage	The engineer and	Environment and	Ethics	Individual and Team	Communication	Project Management and Finance	Life-long Learning
		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
ComputerAided Machine Drawing (ME-104)	CO1: Students will be able to make an orthographic & sectional drawing of machine components	H	M	M	-	M	M	M	-	-	M	-	M
	CO2: Students will be able to make drawing of joints(permanent & temporary) &assembly drawings.	H	M	M	-	M	M	M	-	-	M	-	M

SUBJECT: ENGINEERING MECHANICS [OE-101]
For All Branch

COs mapping with Pos

SUBJECT	COURSE OUTCOME	Engineering Knowledge	Problem analysis	Design/Development of Solutions	Conduct Investigation of complex Problems	Modern Tool Usage	The engineer and society	Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management and Finance	Life-long Learning
		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
Engineering Mechanics (OE-101)	CO1: Students will be able to articulate and describe fundamental laws of forces, FBD and virtual work.	H	M	-	-	-	-	-	-	-	-	-	M
	CO2: Students will be able to apply and analyze problem associated with Centre of gravity and Moment of Inertia.	H	M	-	-	-	-	-	-	-	-	-	M
	CO3: Students will be able to understand the basic concept of stress and strain to solve related problem.	H	M	-	-	-	-	-	-	-	-	-	M
	CO4: To able to describe and apply the laws of motion, kinematics of rigid bodies, work, energy and power.	H	M	-	-	-	-	-	-	-	-	-	M

Course Outcomes

Subject – Computer Programming Lab **Code – CS-104**
Branch – All **Semester- II**

Upon successful completion of this course students will be able to:

CO1 Develop ability to create and execute the program which uses array and structure to store data, pointers.

CO3 Develop ability to create and execute the program using dynamic memory allocation.

CO3 Develop ability to create and execute the program which uses file handling for storing the data.

CO/PO	P O 1	PO2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12
CO1	M	M	H	L				-	M	L	M	L
CO2	M	M	H	L				-	M	L	M	L
CO3	M	M	H	L				-	M	L	M	L

Nil = - **L - Low** **M – Medium** **H – High**

Laboratory Outcomes
Engineering Chemistry Lab (CY-102)

Students will be able to:

- **Analyze properties of lubricants & fuel.**
- **Carryout, record and analyze the result of volumetric analysis.**

Co Po Mapping for Engineering Chemistry Lab (102)

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
I	M	M	-	L	-	-	-	-	L	M	-	-
II	M	M	-	L	-	-	-	-	L	M	-	-

LAB OBJECTIVE:

HU- 102: COMMUNICATION SKILLS LAB

- The students will be able to develop analytical frame of mind through practical exposure of life.
- The students will get encouraged to use better vocabulary in expressing themselves, speaking better.
- The students will be confident to speak in Public.

Subject: Communication Skills (LAB) **Code: HU- 102**

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
I	-	L	-	-	-	L	-	-	H	H	-	L
II	-	L	-	-	-	L	-	-	H	H	-	L
III	-	L	-	-	-	L	-	-	H	H	-	L

LAB OUTCOMES:

HU 104: HUMAN VALUES (ACTIVITIES)

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

4. Inculcate among themselves the awareness towards their capabilities of accepting, realizing and differentiating the basic needs of both the body and the soul, essential for good health and practicing ethical behavior in their profession.
5. Evaluate themselves in terms of respect, trust, competence, and their mutual fulfilment with the four orders of Nature through a series of narration of some decisive incidents of their own life, skits, stories, poems etc., paving way for understanding the environment and sustainability.
6. Use their human values and human knowledge for moving towards the universal human order, serving the society through minor project work for the betterment of society.

Subject: Human Values (Lab) **Code: HU-104**

COURSE OUTCOMES

COURSE OUTCOMES	PROGRAM OUTCOMES											
	1	2	3	4	5	6	7	8	9	10	11	12
CO I	-	-	L	-	-	H	H	H	L	L	-	L
CO II	-	-	L	-	-	H	H	H	L	L	-	L
CO III	-	-	L	-	-	H	H	H	L	L	-	L

JECRC, Department of Physics

Course Outcomes of Engineering Physics (PY-101) for the Session 2017-18 (Semester-I&II)

4) Student will be able to apply the concept of interference, diffraction, and polarization to manufacture various devices based on it e.g. (Thin film coating) in solar cell in (photovoltaic technology), Recording 3D film in interference pattern which when displayed by polarization phenomenon (by Polaroid) and also the study of optical spectra of light source through plane diffraction grating.

5) Student will be able to select the material for specific application using Hall' s effects and Bragg' s Law for determine inter atomic distances in crystals and its types, and also able to use the basic concept of quantum theory e.g. Schrödinger's wave equation and its application for time dependent and time- independent in 1D and 3D case.

6) Students will able to use the concept of coherence and optical fiber e.g. transmission and communication in laboratories, in medical sciences, in military and defence, life sciences and high energy solar cells. Laser & holography e.g. Lasic laser eye surgery, dental implants, tool and die making. Holography e. g. 3-D films production and display, human brain surgery by 3-D microscope, trade show, engineering and architecture.

8.5.1 MAPPING OF CO & PO (Theory)

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	L	L	-	-	-	-	-	L	L	-	L
CO2	M	L	L	-	-	-	-	-	L	L	-	L
CO3	M	L	L	-	-	L	-	-	L	L	-	L

Nil = - L - Low M – Medium H – High

JECRC, Department of Physics

Course Outcomes of Engineering Physics Lab for the Session 2017-18 (Semester-I&II)

3. Students will be able to operate the various devices for the multifarious use in the relative fields e.g. to apply the application of interference of light to determine the wavelength of monochromatic light by Newton's rings, to apply the knowledge of diffraction of light to determine the wavelength of prominent lines of Mercury vapour lamp by plane diffraction grating with the help of spectrometer and also apply the concept of polarization to determine the specific rotation of sugar by polarimeter.

4. Students will be able to understand the basic principles of semiconductor & capacitors to perform the experiment energy band gap of semiconductor of a p-n junction by reverse bias, charging and discharging of capacitor to determine the time constant (t = RC) by graph and also apply the concept of optics and electrical and electronics to perform; He-Ne Laser experiment to determine the wavelength, coherence length, coherence time. Resolving power of telescope, dispersive power of material (prism) using spectrometer, to determine the height of building using sextant, also specific resistance of a wire using Carey Foster's bridge, V-I charactertices of p-n junction diode.

8.5.1 MAPPING OF CO & PO (Lab.)

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	L	L	-	-	L	-	-	L	L	-	M
CO2	M	L	L	-	-	-	-	-	L	L	-	M

Nil = - L - Low M – Medium H – High