UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise-Plan

Subject Name: Organizational Behavior **Subject Code-HU801**
Year: 4th Year **Semester: Eighth**

Module Number	Topics	Number of Lectures
1	**Introduction:**	
	Organization: Mission,Goals,Characteristics,Types,Structure&Design–Elements,DesignsbyFunction, Product,Location,Matrix;VirtualOrganisation,LearningOrganisation,Mechanistic andOrganicModels; DeterminantsofanOrganizationStructure–Strategy,Size,Technology&Environment	6
	ManagerialPerspectivesonOrganizationalBehaviour:ManagementFunctions,ManagerialRoles,Skills, ChallengesandEffectiveness	4
	OrganizationalCulture: Cultureandits Characteristics,TypesofCultures,WesternandOrientalOrganization Cultures,IndianOrganizationCulture,CultureChange	4
	GroupBehaviour:CharacteristicsofGroup,TypesofGroups,StagesofDevelopment,GroupDecision-making, OrganizationalPolitics,CasesonGroupDecision-making	4
2	**CommunicationinOrganization :** Purpose,Process,ChannelsandNetworks,Barriers,Making CommunicationEffective,TransactionalAnalysis(TA),CasesonCommunication	**3**
	LeadershipStyles: LeadershipTheories,LeadershipStyles,SkillsandInfluenceProcesses,Leadershipand Power,ExamplesofEffectiveOrganizationalLeadershipinIndia,CasesonLeadership	4
	ConflictinOrganization: SourcesofConflict,TypesofConflict,ConflictProcess,JohariWindow,Conflict Resolution,Caseson ConflictResolution.	4
	OrganizationalChangeandDevelopment: Meaning,Process,Resistanceto Change, OD-Meaning, Process,Interventions:SensitivityTraining,SurveyFeedback,ProcessConsultation,TeamBuilding,Inter-group Development	4
	Total Number of Hours 33	

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise-Plan

Faculty In-Charge HOD, Humanities Dept.

UNIVERSITY OF ENGINEERING AND MANAGEMENT,JAIPUR

Lecture-wise Plan

Subject Name: Illumination Engineering **Subject Code-EE 801B**
Year: 4th Year **Semester: Eight**

Module Number	Topics	Number of Lectures
1	**Introduction:**	**4L**
	1. Sources of light: Day light, artificial light sources, energy radiation, visible spectrum of radiation, black body radiation and full radiator.	1
	1. Theory of gas discharge and production of light.Incandescence, dependence of light o/p ontemperature.	1
	2. Perception of light and color,optical system of human eye, eye as visual processor.	1
	3. Reflection, refraction and otherbehavior of light..	1
2	**Measurement of light:**	**5L**
	1. Measurement of light - radiometric and photometric quantities, units of measurement, standardization.	1
	2. Measurement of light distribution, direct and diffused reflection,fundamental concepts of colorimentry and measurement of colour.	2
	3. CIE chromaticity diagram	2
	Lamp accessories and luminaires:	**7L**
3.	1. Light production by gas discharge, fluorescence, incandescence, daylight principle of operation, light efficacy, color.	**1**
	2. Electrical characteristics, typical applications, dimming condition of GLS filament, tungsten halogen lamps, fluorescent tubes, compact fluorescent lamp (CFL),low and high pressure sodium lamps, high pressure mercury lamp, metal halide lamp.	2
	3. Materials Used in luminaries manufacturing, reflection, refraction, diffusion, polarization and optical design, photometric measurements, application data and its use.	2
	4. Functions of luminaries, classification, LED, OLED, Lasers.	**2**
4	**Interior and Exterior lighting Design:**	**7L**
	1. Objectives quantity and quality of light, selection of lamps, luminaries section, placement.	3
	2. Design considerations for lighting of offices, conference rooms, hospitals, teaching places,house etc.design calculations, Industry, sports complex.Design considerations for	4

	lighting of offices, conference rooms, hospitals, teaching places,house etc.design calculations, Industry, sports complex. Tools used for lighting design.	
5	**Lighting Control:**	**8L**
	1. Types of lighting controls, strategy for selection, benefits of lighting control.	2
	2. Electric distribution system for lighting, maintenance strategies, group replacement schedule.	3
	3. Techniques of achieving energy efficient lighting design, role of computers in lighting design, advantages and limitations of computer aided lighting design.	3
Total Number Of Hours = 32		

Faculty In-Charge HOD, EE Dept.

UNIVERSITY OF ENGINEERING AND MANAGEMENT,JAIPUR

Lecture-wise Plan

Assignment:

Module-1:

1. **Derive the relation between lumen power and watt.**
2. **What is the application of Lambert Cosine Law?**

Module-2:

1. **Explain V-H photometry and C-gamma photomotry.**
2. **How does a mirroe gonio photometer works?**

Module-3:

1. What is the Mortimer relation of electrode temperature?
2. What is the optimum temperature of the electrodes of low pressure sodium lamp? Explain cataphoresis.

Module-4:

1. **Explain the Navier Stokes relation with respect to HID lamps.**
2. **Design of Office Space / Indoor Stadium.**

Module -5:

1. **How does DALI function.**
2. **Explain the working of dimmer for (a) LED (b) HID lamps.**

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise-Plan

Subject Name: Power Plant Instrumentation **Subject Code-EE802A**
Year: 4th Year **Semester: Eight**

Module Number	Topics	Number of Lectures
1	**General Concepts:**	**6L**
	1. Power Plants of different types Setups.	1
	2. Power Plants of different typesenergy conversions and measurementrequirements.	1
	3. Examples of Thermal.	1
	4. Examples of Hydel and Nuclear plants.	1
	5. Thermal power plant process.	1
	6. Thermal power plant systeminstrumentation.	1
2	**Instrumentation for:**	**10L**
	1. Turbines system.	2
	2. Generators system.	2
	3. Condensers system.	2
	4. Process of feed water system, combustion air and flue gases system.	2
	5. Coal handling plant and Water treatment.	2
3.	**Control:**	**8L**
	1. Boiler Control - Steam pressure control,	1
	2. Combustion control, Furnace Draft control.	1
	3. Steam temperature control, Feed water control	1
	4. Data logger and computer control.	1
	5. Supervisory control and monitoring system.	1
	6. Instrumentation for safety interlocks - protective gears, emergency measures	1
	7. Alarm systems and Analysis	1
	8. Pollution measurement, monitoring and control	1
4	**Data handling-processing:**	**6L**
	1. Plant data handling-processing	1
	2. Plant data logging, acquisition, accounting	1
	3. Plant data display and storage	1
	4. Instrumentation for Generator and Busbar coupling	1
	5. Introduction to power plant modeling	1
Total Number Of Hours = 40		

Faculty In-Charge HOD, EE Dept.

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise-Plan

Subject Name:-SENSORS AND TRANSDUCERS **Subject Code**:-EE802B

Year: Fourth Year **Semester:** -Eight

MODULE NO.	TOPICS	NO OF LECTURES(H)
1.	INTRODUCTION Definition, principles of sensing and transduction, classification	1
2.	MECHANICAL AND ELECTROMECHANICAL SENSORS a) Resistive (potentiometric) type: resolution, accuracy, sensitivity b) Strain Gauges: theory, types, sensitivity, gauge factor, variation with temperature c) Inductive sensors: common types- reluctance change type, mutual inductance change type, transformer action type, magnetostrictive type d) LVDT: Construction, output-input relationship, I/O curve, discussion e) Proximity sensor	1 2 2 2 1
3.	CAPACITIVE SENSORS a) Variable distance- parallel plate type b) Variable area- parallel plate, serrated plate/teeth type and cylindrical type c) variable dielectric constant type PIEZOELECTRIC ELEMENTS a) piezoelectric effects, charge and voltage coefficients b) ultrasonic sensors	1 2 1 2 1
3.	THERMAL SENSORS a) Material expansion type: solid, liquid, gas and vapour b) Resistance change type: RTD, materials, construction, tip sensitive and stem sensitive type, Thermister materials, shapes, ranges, accuracy specifications c) Thermoemf sensors: types, thermoelectric powers, general consideration	1 2 2

4.	MAGNETIC SENSORS a) Sensors based on Thomson effect b) Hall effect and Hall drive, performance characteristics RADIATIONSENSORS a) LDR, photovoltaic cells, photodiodes, photo emissive cells- types, materials, construction, respons b) Geiger counters c) Scintillation detectors Introduction to Smart sensors	 1 2 2 1 1 1
5.	VELOCITY, ACCELERATION SENSORS a) Electromagnetic velocity sensor; spring-mass-system, measurement of deflection b) Principle of accelometers, sensitivity, noise FLOW a) Pressure gradient technique b) Rotameter thermal transport technique c) Electromagnetic sensor d) Ultrasonic sensors	 1 1 1 1 1 1
		35

ASSIGNMENT:

MODULE1 & 2:

1. Define sensor and transducer with suitable examples. What is the difference between them?
2. What do you understand by resolution, accuracy and sensitivity of potentiometer?
3. What is gauge factor of strain gauge?
4. Write short notes on LVDT and proximity sensor.

MODULE3:

1. What are the different types of capacitive sensors?
2. What are the main functions of capacitive sensors
3. What is piezoelectric effect? How is it employed for sensing perpose?
4. Write short note on ultrasonic sensor.

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Lecture-wise-Plan

Subject Name:-SENSORS AND TRANSDUCERS **Subject Code**:-EE802B

Year: Fourth Year **Semester: -**Eight

MODULE4:

1. Explain Thomson effect and Hall effect.
2. What is Hall sensor. Explain its function.
3. What is the function of LDR?
4. Write a short note on Geiger counters.
5. What is a smart sensor? How are they different from other sensors?

MODULE5:

1. What is accelerometer? Explain its functionality as sensing device.
2. Write a short note on ultrasonic sensor.
3. Write a short note on RTD.
4. What is a thermo-EMF sensor? What are the applications?

Faculty In-Charge HOD, EE Dept.

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise-Plan

Subject Name: Biomedical Instrumentation **Subject Code-EE802C**
Year: 4th Year **Semester: Eight**

Module Number	Topics	Number of Lectures
1	**Module-1 (Fundamentals)**	**6L**
	1. Introduction to Physiological Systems– Organism, Cardiovascular, Respiratory, Renal, Hepatic, Gastrointestinal, Endocrinal, Nervous, Muscular, Cellular .	1
	2. Biological Signals–Bioelectric events, Biomechanical Systems, Cellular & Membrane phenomenon. The Action Potential and Propagation through Nervous System. The Peripheral Nervous Systems and sensory mechanisms. Biomaterials.	1
	3. Fundamentals of Electrophysiology– EKG, EEG, EMG, Evoked potentials. Quantification of Biological Signals.	1
2	**Module2 (Measurement&Analysis)**	**10L**
	1. Biological Sensors- Bio-electrodes, Biosensors and Transducers for Cardiology, Neurology, Pulmonary, Oxygen saturation & gaseous exchange, flow measurement, goniometry, Endoscopy, Impedance Plethysmography.	3
	2. Biological Amplifiers – Instrumentation Amplifiers for Electrophysiology (ECG, EMG, EEG, EOG), Filters, Power Supplies.	3
	3. Recording and Display systems, Digital Conversion for storage, Electrical Hazards in measurements, Isolation Circuits, calibration, alarms & Multi-channel re-constitution	2
	4. Hospital requirements–Multi-parameter bed-side monitors, Central Nursing Stations, Defibrillators, Ventilators, Catheters, Incubators.	2
3	**Module- 3(Life-Support&Treatment)**	**9L**
	1. Cardiac Support: Implantable & programmable Pacemakers, External & Internal Defibrillators, Coronary Angiography.	2
	2. Electro-physiotherapy: Shortwave & ultrasonic diathermy, Transcutaneous Nerve Stimulators in pain relief, Traction Systems, Ultrasound in bone fracture re generation, hypothermia & hyperthermia systems.	3
	3. Lasers in treatment and surgery: Ophthalmic, Ablators, Endoscopic	2

	4. Assists and Artificial limbs- Orthoses, passive and powered Prostheses.	2
4	**Module-4(Imaging)**	**12L**
	1. Fundamentals of X-Rays, Radiological Imaging, Digital Radiology, DSA..	3
	2. Computer Tomography, Image Processing, solid state sensors, whole-body scans	3
	3. Gamma camera & radio-isotope imaging	1
	4. Ultrasonography-Transducers, Signal Conditioners, 2D & 3D scans, Doppler &Color Doppler	3
	5. Fundamentals of Magnetic Resonance Imaging and PET- scans	2
Total Number Of Hours = 37		

Faculty In-Charge HOD, EE Dept.

Assignment:

Assignment-1:

1. Find internet resources for BME news: Search the web to find at least 3sources for news/reports about biomedical instruments. Look for sitesthat cover both technical issues as well as business issues (marketanalysis, company activity reports, etc.). Please avoid company-specificsites. List the sources and URLs that you find.
2. Summarize BME news report: Locate a technical news article related tobiomedical instruments (from an independent news source, not acompany data sheet). Read the article and write a brief (1 paragraph,~1/2 page) summary of the article. List the source (e.g. URL)after/within your summary.
3. Find more sources related to your report summary: Search the web forother information related to the topic of the article you summarized inpart 2. List these resources (that's all, just list the sources).

Assignment-2:

1. What are the electrodes used for ECG?
2. What are the electrodes used for EEG?
4. Disadvantages of Surface electrodes with EMG?
5. Define ECG, EEG, EMG
3. Define latency in EMG
4. What are the different types of electrodes?
6. Give the need for electrode paste
7. Name two transducers used for respiratory rate measurement

Assignment-3:

1. Describe the different types of recording system

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Lecture-wise-Plan

2. Describe the recording setup used in EMG
3. Discuss the different ECG lead configuration
4. Describe the different waves of EEG
5. Bring out the salient features of phonocardiography

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Lecture-wise-Plan

Subject Name: Process control **Subject Code-EE802D**
Year: 4th Year **Semester: Eight**

Module Number	Topics	Number of Lectures
1	**Introduction:**	**10L**
	1. Introduction- General view of process, Process control & automation.	1
	2. Servo and regulatory control.	1
	3. Basic process control loop block diagram. Characteristic parameter of a process.	1
	4. Process quality, Process potential.	1
	5. Process resistance, Process capacitance, Process lag, Self regulation	1
	6. Process modelling, Process equations and their limitations-general approach	1
	7. Typical processes and derivation of their functions. Characteristics and functions of different modes of control actions	1
	8. Schemes and analysis of On-Off, Multi step, Floating, Time proportional, PID control.	1
	9. Effect of disturbances and variation in step input process control	1
	10. Offset-why it appears and how it is eliminated-analysis and mathematical treatment.	1
2	**Process reaction curves:**	**8L**
	11. Process reaction curves- Controllability-using (i) deviation reduction factors.	1
	12. Process reaction curves- Controllability-using (ii) gain Band width product, State control liability.	1
	13. Tuning controllers: both closed and open loop methods.	1
	14. Ziegler-Nichols.	1
	15. Cohen, PRC Method.	1
	16. 3-C method of parameter adjustment.	1
	17. Electronic PID controller design.	1
	18. Pneumatic controllers-brief analysis.	1
3.	**Different control strategies-schemes:**	**6L**
	1. Different control strategies-schemes, brief analysis and uses (i)Ratio control	1
	2. Different control strategies-schemes, brief analysis and uses (ii) Cascade control	2
	3. Different control strategies-schemes, brief analysis and (iii) Feed forward control	2
	4. Different control strategies-schemes, brief analysis and uses (iv) Multivariable control	1
4	**Final control element:**	**8L**
	1. Final control element: Actuators (Pneumatic actuators)	1
	2. Final control element: Electrical actuators)	1
	3. Control valves (Globe, Ball. Butterfly, Gate, Pinch),different parts	1

	4. Fail Position, Valve Characteristics	1
	5. CV, single & Double seated valves	1
	6. Valve sizing, Valve selection, Cavitations, Flashing, Noise. Control valve accessories-Air filter regulator	1
	7. I/P converter, Pneumatic positioner, Electro Pneumatic positioner, limit switches, Motion transmitter	1
	8. Brief study of safety valves and Solenoid valves	1
5	**Introduction to Programmable Logic controllers:**	**8L**
	1. Logic controllers : Basic Architecture and function	1
	2. Input- output modules and interfacing,	1
	3. interfacing, CPU and memory	1
	4. Relays, Timers	1
	5. Counters	1
	6. PLC programming	1
	7. PLC applications	1
	8. Introduction to DCS	1
Total Number Of Hours = 40		

Faculty In-Charge HOD, EE Dept.

Assignment:

Module-1(Introduction):

1. Consider a steam boiler producing saturated steam. The number of components is one (water) and the number of phases are two (liquid and gas) therefore the number of degree of freedom are?
2. Dynamic response of pure capacitive process.
3. Derive the equation for first order level process-liquid storage tank**.**

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Course Description

Title of Course: Grand Viva **Course Code: EE881**
L-T –P Scheme: 0P **Course Credits: 4**

Aims and Objectives

1. To compare the traditional viva examination (TVE) with OSVE (Objective Structured Viva Examination).

2. To obtain the students' opinion regarding OSVE as an assessment tool.

3. A suggestion to include OSVE as a part of university examination.

Materials and Methods

The study was carried out in November 2012, at K.J. Somaiya Medical College, in the department of Anatomy. 50 students were exposed to different stations of viva as well as OSVE. A comparison was made of the student's performance and a feedback was taken from the students regarding the same.

As the OSVE was being conducted for the first time, the students were notified in advance regarding the plan for conducting the part ending practical assessment – by both the TVE and OSVE. The OSVE was planned for 20 marks, viva voce of 20 marks.

Purpose and Format of the Viva Voce Examination

Literally, "viva voce" means by or with the living voice - i.e., by word of mouth as opposed to writing. So the viva examination is where you will give a verbal defence of your thesis.

Put simply, you should think of it as a verbal counterpart to your written thesis. Your thesis demonstrates your skill at presenting your research in writing. In the viva examination, you will demonstrate your ability to participate in academic discussion with research colleagues.

Purpose of the Exam

The purpose of the viva examination is to:

- demonstrate that the thesis is your own work
- confirm that you understand what you have written and can defend it verbally
- investigate your awareness of where your original work sits in relation to the wider research field
- establish whether the thesis is of sufficiently high standard to merit the award of the degree for which it is submitted

- allow you to clarify and develop the written thesis in response to the examiners' questions

The Examiners and Exam Chair

You will normally have two examiners:

- an internal examiner who will be a member of academic staff of the University, usually from your School/Department but not one of your supervisors
- an external examiner who will normally be a member of academic staff of another institution or occasionally a professional in another field with expertise in your area of research (candidates who are also members of University staff will normally have two external examiners in place of an internal and an external examiner)

Your supervisor should let you know who your examiners will be as it is important that you ensure you are familiar with their work and any particular approach that they may take when examining your thesis.

In some cases there may also be a Chair person for the examination. A Chair is appointed if the Graduate Dean or either of the examiners feels this is appropriate, for example where the examining team has relatively little experience of examining UK research degrees. The Chair is there to ensure the examination is conducted in line with University regulations and is not there to examine your thesis. If there is a Chair person, it will usually be a senior member of the academic staff of your School/Department.

Normally no one else is present in the exam.

Exam Venue and Arrangements

Your internal examiner is responsible for arranging your viva exam and they will contact you with the relevant details - date, time, venue, etc.

Usually the viva exam will take place in your School/Department, though occasionally another University location may be used. If you are unsure where you need to go, make sure you check this before the day of your exam.

If you returned your Notice of Intention to Submit Your Thesis three months before your submission date, your viva exam should normally take place quite soon after submission. Almost

all viva exams take place within three months of thesis submission and in many cases it is within one month.

Format of the Exam

All viva examinations are different, so it is not possible to describe exactly what will happen - but there are general points which can be made which may be helpful, and you should have the opportunity before your examination to discuss what will happen with your supervisor or to attend the University's pre-viva examination workshop.

The purpose of the viva is to establish that your work is of a sufficiently high standard to merit the award of the degree for which it is submitted. In order to be awarded a research degree, the thesis should demonstrate an original contribution to knowledge and contain work which is deemed worthy of publication.

In order to do this, examiners may:

- ask you to justify your arguments
- ask you to justify not only things which you have included in your thesis but also things which you may have left out
- ask you questions about the wider research context in which the work has been undertaken
- argue certain points with you
- expect you to discuss any developments which may flow from your work in the future

Inevitably, your thesis will have strengths and weaknesses and the examiners will want to discuss these. It is considered a positive thing, indeed an essential thing, that you can discuss both the strengths and the weaknesses. You can think of the weaknesses as an opportunity to demonstrate your skill at critical appraisal.

Remember that examiners seek to find and discuss weaknesses in all theses - you should not interpret criticism as an indication that the examination will not end successfully.

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Course Description

Title of Course: Project Part-II **Course Code: EE882**
L-T –P Scheme: 12P **Course Credits: 12**

Project: an activity where the participants have some degree of *choice* in the outcome. The result is complete and functional, that is, it has a beginning, middle and end. Usually, it spans multiple lab periods and requires work outside scheduled lab periods. Since there are choices in implementation, *design* is inherently a component of a project. A project is inherently different from an *analysis* or *exercise*, in which the solution has a predictable form. Projects span a wide variety of possibilities: design and build, identify a system, do a forensic analysis, evaluate a product or assess some environmental situation.

Program Objective 1
Graduates shall make their way to the society with proper scientific and technical knowledge in mechanical engineering.

Program Objective 2
Graduates shall work in design and analysis of mechanical systems with strong fundamentals and methods of synthesis.

Program Objective 3
Graduates shall adapt to the rapidly changing environment in the areas of mechanical engineering and scale new heights in their profession through lifelong learning.

Program Objective 4
Graduates shall excel in career by their ability to work and communicate effectively as a team member and/or leader to complete the task with minimal resources, meeting deadlines.

Program Outcomes:

1. Ability to apply knowledge of mathematics, science and mechanical engineering fundamentals for solving problems.
2. Ability to Identify, formulate and analyze mechanical engineering problems arriving at meaningful conclusions involving mathematical inferences.
3. Ability to design and develop mechanical components and processes to meet desired needs considering public health, safety, cultural, social, and environmental aspects.
4. Ability to understand and investigate complex mechanical engineering problems experimentally.
5. Ability to apply modern engineering tools, techniques and resources to solve complex mechanical engineering activities with an understanding of the limitations.
6. Ability to understand the effect of mechanical engineering solutions on legal, cultural, social, public health and safety aspects./li>

Course Description

7. Ability to develop sustainable solutions and understand their impact on society and environment.
8. Ability to apply ethical principles to engineering practices and professional responsibilities.
9. Ability to function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.
10. Ability to comprehend, design documentation, write effective reports, make effective presentations to the engineering community and society at large.
11. Ability to apply knowledge of engineering and management principles to lead teams and manage projects in multidisciplinary environments.
12. Ability to engage in independent and life-long learning in the broad context of technological changes and advancements.