UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name: **Economics for Engineers** Subject Code: **HU-HU802**

Year: **4th Year** Semester: **Eighth**

Module Number	Topics	Number of Lectures
1	1. Economic Decisions Making – Overview, Problems, Role, Decision making process. 2.EngineeringCosts&Estimation– Fixed, Variable, Marginal & Average Costs, Sunk Costs ,Opportunity Costs, Recurring And Non recurring Costs, Incremental Costs, Cash Costs vs Book Costs, Life-Cycle Costs; Types Of Estimate, Estimating Models-Per-Unit Model, Segmenting Model, Cost Indexes, Power-Sizing Model, Improvement &Learning Curve, Benefits.	**2L** 5L 3L
2	3. Cash Flow, Interest and Equivalence: Cash Flow Diagrams, Categories & Computation, Time Value of Money, Debtre payment, Nominal & Effective Interest. 4. Cash Flow & Rate Of Return Analysis–Calculations, Treatment of Salvage Value, Annual Cash Flow Analysis, Analysis Periods; Internal Rate Of Return, Calculating Rate of Return, Incremental Analysis; Best Alternative Choosing An Analysis Method, Future Worth Analysis, Benefit-Cost Ratio Analysis, Sensitivity And Break even Analysis. Economic Analysis In The Public Sector – Quantifying And Valuing Benefits & drawbacks.	**2L** 2L 2L
3	5.Inflation And Price Change Definition, Effects, Causes, Price Change with Indexes, Types of Index, Composite vs Commodity Indexes, Use of Price Indexes In Engineering Economic Analysis, Cash Flows that inflate at different Rates. 6. Present Worth Analysis: End-Of Year Convention, View point Of Economic Analysis Studies, Borrowed Money View point, Effect Of Inflation & Deflation, Taxes, Economic Criteria, Applying Present Worth Techniques, Multiple Alternatives. 7. Uncertainty In Future Events-Estimates and Their Use in Economic Analysis, Range Of Estimates, Probability, Joint Probability Distributions, Expected Value, Economic Decision Trees, Risk, Risk vs Return, Simulation, Real Options.	**2L** 4L
4	8. Depreciation - Basic Aspects, Deterioration & Obsolescence, Depreciation And Expenses, Types Of Property, Depreciation Calculation Fundamentals, Depreciation And Capital Allowance Methods, Straight-Line Depreciation Declining Balance Depreciation, Common Elements Of Tax Regulations For Depreciation And Capital Allowances. 9. Replacement Analysis- Replacement Analysis Decision Map, Minimum Cost Life of a New Asset, Marginal Cost, Minimum Cost Life Problems.	**4L** 4L

	10. Accounting–Function, Balance Sheet, Income Statement, Financial Ratios Capital Transactions, Cost Accounting, Direct and Indirect Costs, Indirect Cost Allocation.	
	TOTAL NO. OF HOURS= 36L	

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name: Environmental Pollution And Control **Subject Code: CE801A**
Year: 4th Year **Semester: Eighth**

Module Number	Topics	Number of Lectures
1	**Chapter 1: Introduction**	**2L**
	1. Environment, Pollution, Pollution control	2L
	Chapter 2: Air Pollution	**8L**
	1. Air Pollutants: Types, Sources, Effects	2L
	2. Air Pollution Meteorology: Lapse Rate, Inversion	1L
	3. Plume Pattern; Air Pollution Dispersion Model: Point Source	2L
	4. Gaussian Plume Model, Stability Classes, Stability Charts, Design of Stack Height.	3L
	Chapter 3: Air pollution Control	**8L**
	1. Self-cleansing properties of the environment; Dilution method;	1L
	2. Engineered Control of Air Pollutants	3L
	3. Control of the particulates, Control of Gaseous Pollutants	2L
	4. Control of Air pollution from Automobiles.	2L
2	**Chapter 4: Noise Pollution** ,	**4L**
	1. Definition; Sound Pressure, Power and Intensity Noise Measurement	1L
	2. Relationships among Pressure, Power and Intensity, Frequency Band, Decibel Addition	1L
	3. Levels, Measures of community Noise i.e. L_N, L_{eq}, L_{dn}, L_{NP}; Sources, Effects; Control.	2L
	Chapter 5: Water Pollution	**4L**
	1. Pollution Characteristics of Typical Industries	2L
	2. Suggested Treatments	2L
3	**Chapter 6: Global Environmental Issues**	**4L**

	1. Ozone Depletion, Acid Rain	2L
	2. Global Warming- Green House effect	2L
	Chapter 7: Administrative Control on Environment	**4L**
	1. Functions of Central and State Pollution Control Boards	2L
	2. Environmental Clearance Process for Industries and Infrastructural	2L
4	**Chapter 8: Environmental Laws**	**2L**
	1. Water Act, Air Act	1L
	2. Motor Vehicle Act	1L
Total Number Of Hours = 36L		

Faculty In-Charge HOD, CE Dept.

Assignment:

Module-1):

1. Suppose an anemometer at a height of 10 m above ground measure wind velocity =2.5 m/s. Estimate the wind speed at an elevation of 300 m in rough terrain if atmosphere is unstable (i.e., k = 0.2).

2. A 40% efficient 1000 MW coal fired power plant emits SO_2 at a rate of 6.47 x 10^8 micrograms/s. The stack has effective height = 20 m (CPCB recommended minimum height = 30 m). An anemometer on a 10 m pole measures 2.5m/s of wind and atmospheric class is C.
   a) Predict the ground level concentration of SO_2 4 km directly downwind?
   b) What would be this concentration if stack height is changed to 30 m?
   c) What is the recommended stack height based on SO_2 emission rate?
   d) Which stack height would you choose?

Module-2:

1. What is the acceptable temperature range and time of incubation for the BOD test?

2. What is seeded BOD sample?

3. 200 ml of Yamuna river water was collected from just below the tannery. 2 ml of river water is diluted to 1 L, aerated and seeded. The DO content was 7.8 mg/L initially. After 5 days, the DO content has dropped to 5.9 mg/L. After 20 days, the DO content had fallen to 5.3 mg/L. What is the ultimate BOD?

Module-3:

1. Write the mechanism behind ozone depletion in the stratosphere.

2. Describe the consequences of global warming on the biosphere.

3. Write the chemical reactions related to acid rain. Discuss the harmful effects of the acid rain.

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name:- Water Resources Management & Planning **Subject Code**:- CE 801B
Year: FOURTH Year **Semester: -** EIGHT

Module No.	Topics	Planned Lectures(H)
1.	**Planning and analysis of Water Resource Systems**	**3H**
	Introduction, System Analysis, Engineers and Policymakers	3H
2.	**Methods of Analysis**	**4H**
	Introduction, Evaluation of Time streams of Benefits and Costs	2H
	. Plan formulation, Planning models and solution procedures, Lagranges Multipliers	2H
	Dynamic Programming, Recursive equations, Bellmans' principle of optimality.	2H
3.	Curse of dimensionality of discrete dynamic programming. Examples	2H
	Reservoir Operation	**6H**
	Sequential process	2H
	single Reservoir problem - with release as decision variable, with storage as decision variable (deterministic approach)	2H
	, Related Computer Programming. Multi–reservoir problems (Deterministic approach)	2H
4.	**Water Resources Planning under Uncertainty**	**10H**
	Introduction, probability concepts and Methods – Random variable and Distributions,	3H
	Univariate probability Distributions ,properties of Random variable – Moment and Expectation (Univariate Distributions)	3H
	, Moment Generating Functions, Measures of Central tendency	2H
	Measures of Dispersion, Measures of symmetry (Skewness), measures of peakedness (kurtosis),	2H
5.	**Stochastic River Basin Planning Model**	**6H**
	Introduction, Reservoir operation, Stochastic, Dynamic programming,	3H
	Probability Distribution of Storage volumes and Releases, examples	3H

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name **Water Resources Management & Planning** Subject Code: **CE 801B**
Year: **4TH Year** Semester: **EIGHT**

	Water quality Management	**3H**
	Prediction and Simulation	1H
6.	Water quality Management Modeling	2H
TOTAL HOUR REQUIRED=32		

Faculty In-Charge HOD, CE Dept.

Assignment :

Module : 1

1. Discuss the hydrological water budget equation
2. what is hydrological cycle? Explain it with suitable sketch diagram.
3. Differentiate between recording and non - recording type of rain gauges.
4. Define precipitation. Explain different forms of precipitation?
5. Name three methods of computing average annual rainfall write step wise procedure for Theissen's polygon method.

Module :2

1. What are the consumptive uses of water? Explain the factor affecting consumptive use of water.
2. What do you understand with adequacy of rain gauge stations.

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name **Water Resources Management & Planning** Subject Code: **CE 801B**
Year: **4TH Year** Semester: **EIGHT**

Module :3

1. Define irrigation. What is the necessity of irrigation?
2. What are the techniques of water distribution in the farms? Explain in brief.
3. Derive the relation between Duty and Delta.
4. what is crop period and base period?

Module :4

1. Name the methods of computing stream flow and explain any one in brief.
2. Derive the stage discharge relationship.

Module :5

1. What is base flow separation.
2. Define unit hydrograph and also write the application of unit hydrograph.
3. What is S curve and flood routing.

Module :6

1. what are the advantages of canal lining?
2. Explain in detail losses of channel.
3. Explain time factor and capacity factor.

.

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name **Water Resources Management & Planning** Subject Code: **CE 801B**

Year: **4TH Year** Semester: **EIGHT**

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name: Remote sensing and GIS **Subject Code: CE801C**
Year: 4th Year **Semester: Eighth**

Module Number	Topics	Number of Lectures
1	**Chapter 1: Introduction**	**7L**
	1. Definition and types of remote sensing,	1L
	2. Tacheometry (Planimetry/altimetry),	2L
	3. Triangulation (Frame work / adjustment), Trilateration (EDM/ Total Station)	2L
	4. Geodetics (physical/ geometrical geodesy),	1L
	5. Error Analysis (causes / law of weights), Numerical example	1L
2	**Chapter 2: Photogrammetry**	**7L**
	1. Camera System (phototheodolite/ aircraft), Ground photograph (oblique/orthogonal streophoto),	2L
	2. Aerial photograph (perspective scale/ flight planning),	1L
	3. Distortion (relief / tilt), Geometrix (parallax / mapping),	2L
	4. Application (topographics / interpretation), Numerical examples	2L
3	**Chapter 3: Satellite survey** ,	**7L**
	1. Satellite Sensing (Sensors / platforms),	2L
	2. Energy sources (electromagnetic / atmospheric interaction), visual interpretation (Band width),	2L
	3. Digital processing (imageries / enhancement), data integration (multi-approach / GIS),	2L
	4. Microwave imaging (active system / radars), applications	1L
4	**Chapter 4:** Astronomy	**7L**
	1. Celestial sphere (star-coordinates / transformation), ,	1L
	2. Field astronomy (azimuth, solar and polar method),	1L
	3. 3D computation (local vs global),	2L
	4. Spherical trigonometry, Multilateration,	1L

	5. Observation, Corrections in astronomy, Correlation of low, medium, remote objects	1L
	6. Global Positioning Systems	1L
5	**Chapter 5: Geoinformatics**	**8L**
	1. GIS concept (Introduction/ definition),	1L
	2. Planning and management,	1L
	3. Spatial data model	1L
	4. Database and DBMS,	2L
	5. Linking of attributes, geospatial analysis,	2L
	6. Modern trends	1L
Total Number Of Hours = 36L		

Faculty In-Charge HOD, CE Dept.

Assignment:
Module-1:

1. Explain the Ideal remote Sensing system.
2. Discuss the electromagnetic spectrum.
3. What is geodesy?

Module-2:

1. Write short note on : a. Camera Axis b. Nodal point
2. A vertical photograph was taken at an altitude of 12000 m above mean sea level. Determine the scale of the photograph for terrain lying at elevations of 80 m and 300 m if the focal length of the camera is 15 cm.

Module-3:

1. Explain the mechanism of atmospheric scattering.

2. What is the use of Radar in remote sensing?

3. Discuss the interaction between the electromagnetic spectrum and the earth's surface.

Module 4:

1. Define the following:
(i) Celestial sphere
(ii) Zenith and Nadir
(iii) Latitude
(iv) Longitude
(v) Declination

Module 5:
1. Discuss the application of GIS in drought management.
2. Explain GIS data model.

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name: Design of Tall Buildings **Subject Code: CE802C**
Year: 4th Year **Semester: Eighth**

Module Number	Topics	Number of Lectures
1	**Chapter 1: Introduction**	**6L**
	1. Necessity of Tall Buildings, Design Philosophy,	1L
	2. Strength and Stability, Creep, Shrinkage and Temperature Effects,	2L
	3. Fire, Foundation Settlement and Soil-Structure Interaction	3L
2	**Chapter 2: Loadings**	**4L**
	1. Gravity loading, Wind loading, ,	1L
	2. Earthquake Loading	2L
	3. Combination of Loadings	1L
3	**Chapter 3: Structural Forms** ,	**14L**
	1. Braced-Frame Structures,	2L
	2. Rigid Frame Structures	1L
	3. Infilled-Frame Structures,	1L
	4. Shear Wall Structures, Wall Frame Structures	1L
	5. Tubular Structures, Core Structures	1L
	6. Floor Systems – Reinforced Concrete : One-Way slab, Two-way slab	3L
	7. Floor Systems – Steel Framing	1L
	8. One-way Beam System, Two-Way Beam System, Three-Way Beam System	3L
	9. Composite Steel-Concrete Floor Systems	1L
4	**Chapter 4: Modelling for Analysis**	**4L**
	1. Approaches to analysis	1L

	2. Highrise behaviour, Modeling for approximate analysis	2L
	3. Modelling for Accurate Analysis	1L
5	**Chapter 5: Stability of High-rise buildings**	**4L**
	1. Buckling analysis of Frames	4L
6.	**Chapter 6: Dynamic Analysis**	**4L**
	1. Dynamic Response to Wind Loading,	2L
	2. Dynamic Response to Earthquake Loading	2L
Total Number Of Hours = 36L		

Faculty In-Charge HOD, CE Dept.

Assignment:
Module-1:

1. Define: a. Creep
   b. Shrinkage
2. Explain the temperature effect on the strength of building.

Module-2:

1. What is votex shedding?
2. Explain the relationship between wind and height of the building.

Module 6:

1. Write the equations of motion for SDOF and MDOF systems.

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

Lecture-wise Plan

Subject Name: **Finite Elements** Subject Code: **CE802A**
Year: **4th Year** Semester: **8th**

Module No.	Topics	Planned Lectures(H)
1.	**Introduction :**	**4H**
	Introduction , Basic concepts of Finite Elements Analysis, Steps in Finite Element Analysis, Fundamental concepts of Elasticity	4H
2.	**Finite elements formulation techniques :**	**4H**
	1. Virtual Work and Variation Principle, Galerkin Approach, Displacement Approach, Stiffness matrix & Boundary condition.	4H
3.	**Element Properties:**	**4H**
	1.Concepts of shape functions: Natural co-ordinates, one dimensional, triangular, rectangular elements, lagrange and serendipity elements	2H
	2.Isoparametric formulation: Isoparametric Elements, Stiffness of Isoparametric Elements.	1H
	2. Numerical Integration : One , Two Dimensional	1H
4.	**Formation of stiffness matrix :**	**6H**
	1.Analysis of truss, continuous beam, and simple plane frame	6 H
5.	**FEM for Two dimensional analysis :**	**6 H**
	1. Constant strain triangle, Linear strain triangle, Rectangular elements, Numerical evaluation of Element stiffness, Computation of stresses	6 H
6.	**FEM of Plates :**	**4H**
	1. Introduction to plate bending problems. 2. Finite elements analysis of thin plate	4H
	TOTAL = 28 H	

CIVIL DEPT.

UNIVERSITY OF ENGINEERING AND MANAGEMENT,JAIPUR

Lecture-wise Plan

Subject Name: Dynamics of Soils & Foundation **Subject Code-CE802B**
Year: 4th Year **Semester: Eighth**

Module Number	Topics	Number of Lectures
1	**Fundamental of vibrations:**	**9L**
	1. Degrees of freedom, Natural frequency.	1
	2. Undamped single degree freedom system, Damped single degree freedom system,	2
	3. Response to ground motion, Introduction to multiple degree freedom system	3
	4. Transmissibility	3
2	**Introduction to machine foundations:**	**2L**
	1. Types of Machine Foundations, General requirement of Machine foundations	1
	2. Dimensional criteria, Design data, Permissible amplitude, Permissible Bearing pressure	1
3	**Dynamic properties of Soil:**	**8L**
	1. Dynamic properties of Soil	2
	2. Laboratory and field evaluation of soil properties as per IS codes;	6
4	**Analysis and design of block type machine foundation:**	**10L**
	1. Modes of Vibrations, Methods of Dynamic Analysis	2
	2. Design considerations for dynamically loaded foundations and constructional features;	4
	3. Design procedures for foundations for hammers, reciprocating engines , Vibration Isolation and damping	4
5	**Liquefaction of soils**	**5L**
	1. Definition, Causes and effects of Liquefaction	2
	2. Evaluation of Liquefaction potential, Mitigation of Liquefaction Hazards	3
6	**Propagation of elastic waves in soils:**	**2L**
	1. Mechanism of wave propagation, Body waves, Surface waves, Rayleigh waves	2
Total Number Of Hours = 36L		

Faculty In-Charge HOD, CE Dept.

Assignment:
Module-1(Fundamental of vibrations):

1. Derive the equation of motion for under-damped free vibration system?
2. Derive the equation of motion for undamped free vibration system?
3. A platform of weight 18 KN is being supported by four equal columns which are clamped to the foundation. Experimentally, it has been computed that a static force 5KN applied horizontally, to the platform produces a displacement of 2.5 mm. It is estimated that the damping in the structure is of the order of 5% of critical damping. Compute the following:

4. a) Undamped natural frequency. b) Damping coefficient. c) Logarithmic decrement. d) No of cycles and time required for amplitude of motion to be reduced from an initial value of2.5 mm to 0.25 mm.
5. A vibrating system consisting of a weight of w=50 N and a spring with stiffness of 4N/mm is viscously damped. The ratio of two successive amplitudes is 1:0.85. Compute a) Natural frequency (undamped) of the system.b) Logarithmetic decrement c) Damping ratio d) The damping coefficient and e) Damped natural frequency.

Module-2 (Introduction to machine foundations):

1. What are the general requirements of machine foundation**?**
2. State and explain the different categories of machine foundations

Module-3 (Dynamic properties of Soil):

1. What are the dynamics properties of soil?
2. Describe Laboratory and field methods as per IS code to evaluate dynamic properties of soil.

Module-4 (Analysis and design of block type machine foundation:):

1. State the different modes of vibration of a rigid foundation block with diagram.
2. What are the design procedure of block foundation.
3. Explain elastic half space concept.
4. Find the dynamic response of pure rocking vibrations.

Module-5 (Liquefaction of soils):

1. What causes liquefaction?
2. Describe the measures to taken to mitigate liquefaction hazards

Module-6 (Propagation of elastic waves in soils):

1. Write short notes on:
   a. S wave
   b. P wave
   c. Resonance
   d. Response spectrum

UNIVERSITY OF ENGINEERING AND MANAGEMENT,JAIPUR

Lecture-wise Plan

Subject Name: Pavement Design **Subject Code-CE802D**
Year: 4th Year **Semester: Eighth**

Module Number	Topics	Number of Lectures
1	**Principles of Pavement Design :**	**6L**
	1. Types of Pavements, Concept of pavement performance, Structural and functional failure of pavement,	3
	2. Different types of pavement performance, Different pavement design approaches	3
2	**Traffic Consideration in Pavement Design**	**6L**
	1. Vehicle types, Axle configurations, Contact shapes and contact stress distribution	3
	1. Concept of standard axle load, Vehicle damage factor, Axle load surveys, Estimation of design traffic	3
3	**Pavement Material Characterization**	**8L**
	1. Identification of different type of materials Field	4
	2. laboratory methods for characterization of pavement materials	4
4	**Analysis and Design of Flexible Pavements**	**6L**
	1. Selection of appropriate theoretical model for flexible pavements	3
	2. Analysis of different layers of flexible pavements based on linear elastic theory	3
	3. Different methods of design of flexible pavements, IRC guidelines(IRC-37)	3
5	**Analysis and Design of Rigid Pavements**	**6L**
	1. Selection of appropriate theoretical models for rigid pavements	3
	2. Analysis of wheel load stresses, curling, temperature differential, Critical stress combinations,	3
	3. Different methods of design of rigid pavements, IRC guidelines (IRC-58)	
6	**Pavement Overlay Designs**	**4L**
	1. Overlay design as per Indian Roads Congress guidelines (IRC-81) Overlay design as per AASHTO-1993 guidelines	4
Total Number Of Hours = 36L		

Faculty In-Charge HOD, CE Dept.

Assignment:
Module-1(Principles of Pavement Design):

1. What are the types of pavement? Discuss about each of them in brief, also point out the difference.
2. What are the various factors that influecnce the pavement design?

Module-2 (Traffic Consideration in Pavement Design):

1. What are the tree traffic and loading approaches that affect pavement design?
2. Write short note on: i) Equivalent single wheel load and ii)Equivalent single axle load
3. Let number of load repetition expected by 80 KN standard axle is 1000, 160 KN is 100 and 40 KN is 10000. Find the equivalent axle load.
4. A set of dual tyres has a total load of 4090 kg, a contact radius a of 11.4 cm and a center to center tyre spacing of 34.3 cm. Find the ESWL by Boyd & Foster method for a depth of 34.3 cm.

Module-3 (Pavement Material Characterization):

1. What do you mean by Resilient modulus of soil and Dynamic complex modulus?
2. What are the basic advantages of Mechanistic-Empirical pavement design method?
3. What is CBR?

Module-4 (Analysis and Design of Flexible Pavements)

1. What are the different layers of flexible pavement?
2.

Module-5 (Pavement Overlay Designs):

1.

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

Course Description

Title of Course: Structural Engineering Design Practice
Course Code: CE 891
L-T-P scheme: 0-0-3 **Course Credit: 2**

Objectives:
1. The students will develop a clear understanding of the advanced structural design and drawings of different components.
2. They will be able to develop the design concepts of steel bridges and plate girder bridges.
3. They will be able to design the plate girders which involves the design of web, design of flanges, intermediate vertical stiffners, horizontal stiffners and bearing stiffners.

Learning Outcomes: The students will be exposed to various advanced structural designs and drawings like beams curved in plan, domes and circular tanks, rectangular tanks and underground tanks. The students will develop the concepts of aqueducts and box culverts. They will also develop the concepts of concrete bridges and design of T Beam bridge. The students will develop the understanding of steel bridges and plate girder bridges.

Course Contents:
Exercises that must be done in this course are listed below:

1. Water Tanks: Beams curved in plan, Domes, Circular and Intze Tanks, Rectangular Tanks, Underground Tanks.
2. Pipes, Silos & Chimneys: Reinforced concrete pipes, Bunkers and Silos, Chimeneys.
3. Aqueducts and Box Culverts, Concrete Bridges: Type of load, Impact Effect, Design of T-beam Bridge.
4. Plate Girders: Design of Web, Design of flanges, Intermediate Vertical Stiffners, Horizontal Stiffners, Bearing Stiffners, Horizontal Stiffners.
5. Roof trusses: General, Roof and Side Coverings, Design Loads, Purlins, Members, End Bearings, Industrial Building Frames, Framing, Bracing, Crane Girders and Columns.
6. Steel Bridges: Plate girder bridges.

Text Book:
1. Advanced Reinforced Concrete Design By N.Krishnaraju.

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

Course Description

Title of Course: Grand Viva **Course Code: CE881**
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 AND MANAGEMENT, JAIPUR

Course Description

Title of Course: Project Part-II **Course Code: CE882**
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>

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.