Poornima Group of Colleges, Jaipur

Session: 2011-12 (ODD Sem.)

Name of College: **Poornima College of Engineering**

Department of **EIC**

Zero Lecture

Name of Faculty: Brijraj Singh Branch:EIC

1). Name of Subject with Code: Industrial Measurement(7EI05)

2). Self-Introduction:

a). Name: Brijraj Singh
b). Qualification: BE(HONS)
c). Designation: HOD(EIC)
d). Research Area: Digital Communication
e). E-mail Id: brijraj@poornima.*org*
f). Other details: Information about areas of proficiency/ expertise such as subject taught, laboratory taken, Member of Professional body, Academic Proficiency, Book Authored, Paper published in National and International Conference/Journals etc.

3). Introduction of Students:

a). *Identifying and keeping records* of students based on merit/ weak in academics, smart/ dull in extra & co-curricular activity, day scholar/ hosteller, Hindi or English medium, urban or rural family background, their learning style (seeing, hearing, doing) etc.

b*). Achievement of students in previous years*

Sr. No.	Year	Result At PCE	Univ. Result (In %)	Name of student scored highest marks with the scored marks.	Fail (no. of students)	Marks between 40%-60% (no. of students)	Marks 60% above (no. of students)
1	2009-10		87.50		4	19	6
2	2008-09		100		0	35	8
3	2007-08		94.74		2	14	14

4). Instructional Language: - 60%English; 40% Hindi (English not less than 60%)

5). Introduction to subject: - (Pl. separate out subject specific matter and general matter valid for all subjects and group/place them appropriately)

a). Relevance to Branch: This is very important subject to the EIC Branch because it covers important physical parameter in to electrical parameter. It tells about the working of the sensing instrument. This is very useful in project designing, competitive exams and job interviews. As in the competitive world of today everyone has to be competent in certain respects. This subject increases and sharpens the thinking power of mind. That is the reason this subject is used in various competitive exams and in job scenario.

b). Relevance to Society: Modern Industry relies heavily on automation for economic viability and mass production. The availability of sophisticated instruments and variety of control methodologies has great improved not only the quality of the products but also contribution to reduction of costs. In the present times, it is impossible to think of industrial production with instrumentation and control. Students of engineering are therefore called upon to learn the rudiment of instruments and control strategies very early in their graduation courses.

c). Relevance to Self: This subject moves us to the depth of knowledge. The subject has become interesting with the advent of microprocessor and all the devices becoming intelligent. If one is interested in the practical applications then this is useful like in further studies, in projects. As this subject brushes up the thinking power so we come up to the most optimum utilization of the things and subjects.

*d). Relation with laboratory:*In this subject some part of the topic is used as practical in the lobaratory.

e). Connection with previous year and next year: In the previous year we had studied basic measurement circuit which convert the physical quantity like andorson bridge , kelwin bridge dsauty bridge etc. Now we'll study other about the sensing element like bourdon tube,RTD ,Ultrasonic transducer etc. Which measure the physical quantity like pressure ,temp. level ,density etc.

6). Syllabus of Rajasthan Technical University, Kota

a). Index Terms/ Key Words: RTD,Strain Gauge,thermocouple,density detector,flow meter

b). RTU Syllabus with Name of Subject & Code

UNIT1:TEMPERATURE MEASUREMENTS - Bimetallic thermometers, Resistance thermometrs, Thermocouples, Thermistors. Radiation pyrometrs, Optical pyrometers

UNIT2 :PRESSURE MEASUREMENTS - Manometers, bourden tubes , Diaphragms, Bellow's, Electrical pressure transducers - Strain gauge pressure transducer, Potentiometric pressure transducer, Capacitive pressure transducers, Piezo electric pressure transducers, Differential pressure transmitters.

UNIT3 :FLOW MEASUREMENTS - Differential pressure flow meter, Orifice plates, Venturi tubes, Flow nozzels, Pitot tubes, Rotameters. Electromagnetic and ultrasonic flow meters, Vortex flow meters,Mass flow type meters. Shunt flow meters.

UNIT4:LEVEL MEASUREMENTS - Float type, Hydrostatic type, Differential pressure method, Electrical conductivity method, Capacitance level, Ultrasonic and nucleonic gauges. Capacitance probes.
Density Measurements **-** Hydrometers, ultrasonic densitometer, radiation densitometer, Impulse wheel methods.

UNIT 5: STRAIN MEASUREMENTS - Electrical strain gauges Wire & foil type materials, Adhesives configuration, Protective coatings, Bonding, Temp. compensation, Calibration, Applications Rosette gauges.

c). ABC analysis (RGB method) of unit & topics

UNIT1:TEMPERATURE MEASUREMENTS - Bimetallic thermometers, Resistance thermometrs, Thermocouples, Thermistors. Radiation pyrometrs, Optical pyrometers

UNIT2 :PRESSURE MEASUREMENTS - Manometers, bourden tubes , Diaphragms, Bellow's, Electrical pressure transducers - Strain gauge pressure transducer, Potentiometric pressure transducer, Capacitive pressure transducers, Piezo electric pressure transducers, Differential pressure transmitters.

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7). Books/ Website/Journals & Handbooks/ Association & Institution:

a). Recommended Text & Reference Books and Websites:

S. No.	Title of Book	Authors	Publisher	Cost (Rs.)	No. of books in Library
Text Books					
T1	Mechanical and industrial measurement	R.K. Jain	Khanna publications	325	32
T2	Electrical and electronic measurement and instrumentation	A.K.Sawhney	Dhanpat rai & Sons	250	86
T3	Industrial Instrumentation Control	S.K.Singh	TMH	195	17
Reference Books					
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R3	Industrial Instrumentation Control	S.K.Singh	TMH	195	17
Websites related to subject					
1	www.nptel.com				
2	www.google.com				

b). Journals & Handbooks: - To give information about different Journals & Handbooks available in library related to the subject and branch.

1.IETE Journal of research
2.IETE Technical Review
3.Internation Journal of Fuzzy system & Rough System
4.International Journal of Advanced Mechatronics &Robotics
5.International Journal of Control Theory and Application
6. .International Journal of Process System Engineering
7.International Journal on Power System Optimization and Control
8.Journal of the Institution of Engineers-ET
9.Electronic Today

c). Associations and Institutions: - To give information about different Associations and Institutions related to the subject and branch.

1 IEEE magazine (www.ieee.org.in)
2 Institution of Engineers (www.ie.org.in)
3 IETE publications

8). Syllabus Deployment: -

a). Total weeks available for academics (excluding exams/ holidays) as per PGC calendar-

Semester	I	III	V	VII
No. of Working days available(Approx.)	79	76	76	72
No. of Weeks (Approx.)	13	12.5	12.5	12

- Total weeks available for covering RTU syllabus- 10-11 weeks (Approx.)
- Total weeks available for special activities (as mentioned below)- 02 weeks (Approx.)

Note: Individual faculty must calculate the exact no. of lectures available according to time table etc. after consultation with HOD.

b). Special Activities (To be approved by HOD, Dean & Campus Director & must be mentioned in deployment):

- Open Book Test- Once in a semester
- Quiz (50% Technical & 50% Aptitude)- Once in a semester
- Special Lectures (SPL)- 10% of total no. of lectures including following

i. One PPT by the faculty, who is teaching the subject
ii. SPL by expert faculty at PGC level
iii. SPL by expert from industry/academia (other institution)

- Revision classes:- 1 to 3 turn at the end of semester (Before II Mid Term Exam)
- Solving Important Question Bank- 1 Turn before I & II Mid Term Exam (each) - Total Two turn.

c). Lecture schedule per week

i). University scheme (L+T+P) = 3+1/0+0
ii). PGC scheme (L+T+P) = 3/4+1/0+0

Sr. No.	Name of Unit	No. of lectures	Broad Area	Degree of difficulty (High/Medium/Low)	No. of Question in RTU Exam.	Text/ Reference books
1.	TEMPERATURE MEASUREMENTS	8	Thermistor, Thermocoup	Medium	2	R.K. Jain, A.K.Sahaney
2.	PRESSURE MEASUREMENTS	10	Differential pressure transmitters.	Medium	2	R.K. Jain, A.K.Sahaney
3.	FLOW MEASUREMENTS	6	Electromagnetic and ultrasonic flow	Medium	2	R.K. Jain, A.K.Sahaney
4.	LEVEL MEASUREMENTS	13	Electrical conductivity method	Low	2	R.K. Jain, A.K.Sahaney
5.	STRAIN MEASUREMENTS	7	Rosette gauges	Medium	2	R.K. Jain, A.K.Sahaney

d). Introduction & Conclusion: Each subject, unit and topic shall start with introduction & close with conclusion. In case of the subject, it is Zero lecture.

e). Time Distribution in lecture class: - Time allotted: 60 min.

i. First 5 min. should be utilized for paying attention towards students who were absent for last lecture or continuously absent for many days + taking attendance by calling the names of the students and also sharing any new/relevant information.
ii. Actual lecture delivery should be of 50 min.
iii. Last 5 min. should be utilized by recapping/ conclusion of the topic. Providing brief introduction of the coming up lecture and suggesting portion to read.
iv. After completion of any Unit/Chapter a short quiz should be organized.
v. During lecture student should be encouraged to ask the question**.**

Note: Pl. ensure that each student is having Lecture Note Book. Pl. Write on the black board day and date, name of the teacher, name of sub. with code, unit and lecture no. and topics to be covered at the beginning of each lecture and ensure that students write in lecture note book. Ask students to leave 4/5 pages blank for copying the note from fellow students in case of their absenteeism.

9). Tutorial: - An essential component of Teaching- Learning process in Professional Education.

Objective: - To enhance the recall mechanism.
To promote logical reasoning and thinking of the students.
To interact personally to the students for improve numerical solving ability.

a). *Tutorial processing:* - Tutorial sheet shall be provided to each students

Ist Phase: - It is consisting of questions to be solved in the class assignment session in test mode on perforated sheet given in tutorial notebook and to be collected & kept by respective faculty for review & analysis (20 minutes).

IInd Phase: - Indicating/Initializing the weak issues/ drawback and Evaluating and providing the grade. Making a group with good student for assisting the weak students to explain/solve questions by every student on plain papers given in tutorial note book (20 minutes).

IIIrd Phase: - Solving/ explaining difficulties of lecture class and providing the new home assignment (20 minutes). To be done in tutorial note book.

b). *Home assignment shall comprise of two parts:*

Part (i) Minimum essential questions, which are to be solved and submitted by all with in specified due date.

Part (ii) Other important questions, which may also be solved and submitted for examining and guidance by teacher.

10). Examination Systems:

Sr. No.	Name of the Exam	Max. Marks	% of passing marks	Nature of paper Theory + Numerical	Syllabus coverage (in %)	Conducted by
1.	Ist Mid Term Exam	40	40	T+N	60	PCE
2.	IInd Mid Term Exam	40	40	T+N	40	PCE
3.	University (End) Term Exam	80	30	T+N	100	University

11). Any other important point:

Place & Date:
PCE,Jaipur 30/07/2011

Name of Faculty with Designation
Brijraj Singh
HOD-EIC