

# **INSTITUTE OF INSTRUMENTATION ENGINEERING** **KURUKSHETRA UNIVERSITY KURUKSHETRA-136119**

## **Department Profile**

USIC at Kurukshetra University was established in the year 1976 by UGC initially as a Central Instrumentation facility. In subsequent years, after due evaluation, the UGC has upgraded this Centre to the highest level (Level-III), which is among 10 such USICs in the country.

## Vision

To develop the Institute as a Centre of Excellence in learning and teaching for generating trained manpower of the highest quality comparable to the very best in the world and inculcating entrepreneurial avenues to cater to the needs of industry and society at large for sustainable national growth.

The Institution also focuses towards strengthening the R & D activities to facilitate technology transfer for betterment of community as a whole including Tribal Development Program and to become a major supplier of technology and technological services at National and International Level

Director Dr. Sunil Dhingra

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Email: [sdhinra\\_kuk@yahoo.com](mailto:sdhinra_kuk@yahoo.com)

## Faculty Information

	Date of Joining the institution	Specialization	Qualification	Contact
Dr Sunil Dhingra Director	1996	Embedded System	M Sc. Ph.D.	9416362401
Dr. D K Chaturvedi Peofessor	25 Jan 2007	Diffusion in Solids	Ph. D.	9896014243
Dr. V M Murthy Reader	19 Jan 1996	Remote sensing	M Sc. M.Tech. Ph. D	941682237
Sh Pradeep Kumar Lecturer	28 Aug 1995	Computer Networks	M Sc. M Phil	9416412803
Sh D S Rana Lecturer	6 Oct 1995	Control System	M Sc. M Tech	01744239739
Dr. C Srinivas Lecturer	1996	Fluid Dynamics	M Sc M Tech Ph. D	9896894481
Sh Jaipal Saroha Lecturer	03 Oct 2003	Power System Engg Communication Engg	B. Tech M Tecg	9896076022
Sh Avnesh Verma Lecturer	09 Sept 2004	Power Electronics Biomedical Instrumetation	B Tech M Tech	9416481652
Sh B P Singh Lecturer	10 Sept 2004	Control System	B Tech M Tech	9315679363
Sh Surinder Singh Lecturer	01 Dec 2004	Power system Engg Digital signal Processing	B Tech M Tech	9896895190

**Courses Offered**

B Tech Instrumentation Engineering  
M Tech Process control Instrumentation

System of Exam.: Semester system  
system of exam : Semester System

Profile of courses Offered

Degree type	Course Duration	No of sanctioned seats	Scheme of exam
B. Tech	4 year	40	Semester system
M Tech	2 year	20	Semester system

**B.Tech. Instrumentation**  
**Scheme of Examination**  
**SEMESTER – I**

Sub. Code No.	Subject	Paper type			Prac	Total
		Paper type	Internal	External		
IN-1101	Mathematics I	Compulsory	50	100		150
IN1102	Physics – I	Compulsory	50	100		150
IN1103	Communication skills in English	Compulsory	50	100		150
IN1104	Elements of Electronics engg.	Compulsory	25	75		100
IN1105	Chemistry	Compulsory	50	100		150
IN1106	Electrical Technology	Compulsory	50	100		150
IN1107	Environmental studies	Compulsory	25	75		100
PR1108	Physics Lab-I	Compulsory	25		25	50
PR1109	Workshop Practitce	Compulsory	25		25	50
PR1110	Electrical Technology lab.	Compulsory	25		25	50
PR1111	Elements of Electronics Lab	Compulsory	25		25	50
	Total		400	650	100	1150

**SEMESTER – II**

Sub. Code No.	Subject	Paper Type	Internal			Prac	Examinato n scheme Total
			Internal	External	Prac		
IN1201	Mathematics II	Compulsory	50	100		150	
IN1202	Physics II	Compulsory	50	100		150	
IN1203	Elements of Inst. Engg.	Compulsory	50	100		150	
IN1204	Manufacturing Process	Compulsory	50	100		150	

IN1205	Fundamental of computer and programming In C	Compulsory	50	100		150
PR1206	Physics Lab -II	Compulsory	25		25	50
PR1207	Chemistry Lab	Compulsory	25		25	50
PR1208	Computer Programming Lab	Compulsory	25		25	50
PR 1209	Engg. Graphics and Drawing	Compulsory	50		100	150
Total			375	500	175	1050

### SEMESTER – III

Sub. Code No.	Subject	Paper type	Internal	External	Total
IN-HUM-201E	Basics of Industrial Sociology, Economics and Management	Compulsory	100	50	150
IN2301	Measurement Techniques & Theory of Errors	Compulsory	100	50	150
IN2302	Network Analysis	Compulsory	100	50	150
IN2303	Transducers and Applications	Compulsory	100	50	150
IN2304	Linear Integrated Circuits	Compulsory	100	50	150
IN2305	Digital Techniques	Compulsory	100	50	150
PR2306	Transducers Lab.	Compulsory	30	20	50
PR2307	Network Analysis Lab.	Compulsory	30	20	50
PR2308	Digital Techniques Lab.	Compulsory	45	30	75
PR2309	Linear Integrated Circuits Lab.	Compulsory	45	30	75
Total			750	400	1150

### SEMESTER – IV

Sub. Code No.	Subject	Examination Scheme	of Exam		
			Theo	Sess.	Total
IN2401	Maths-III/ Basics of Industrial Sociology, Economics and Management	Compulsory	100	50	150
IN2402	Power Electronics-I	Compulsory	100	50	150
IN2403	Microprocessor	Compulsory	100	50	150
IN2404	Control System Components	Compulsory	100	50	150
IN2405	Electrical Machines	Compulsory	100	50	150
IN2406	Industrial Instrumentation	Compulsory	100	50	150
PR2407	Control System Lab. - I	Compulsory	45	30	75
PR2408	Power Electronic Lab. - I	Compulsory	30	20	50
PR2409	Microprocessor Lab. - I	Compulsory	45	30	75
PR2410	Simulation Lab. - I	Compulsory	30	20	50
Total			750	400	1150

B.Tech. Instrumentation

**Proposed Scheme of Examination, w.e.f. July 2006**

**3rd Year Course**

**SEMESTER – V**

Sub. Code No.	Subject	Type	Examination Scheme		
			External	Internal	Total
IN-3501	Power Electronics-II	Compulsory	100	50	150
IN-3502	Analytical Instrumentation	Compulsory	100	50	150
IN-3503	Microprocessor Based Instrumentation	Compulsory	100	50	150
IN-3504	Communication Engineering & Signals & Systems	Compulsory	100	50	150
IN-3505	Linear Automatic Control System	Compulsory	100	50	150
PR3506	Advanced Microprocessor Lab.	Compulsory	45	30	75
PR3507	Soft computing lab.	Compulsory	30	20	50

PR3508	Power Electronics Lab.II	Comp ulsory	30	20	50
PR3509	Control system lab.	Comp ulsory	45	30	75
PR3510	Industrial Training **	Comp ulsory	70	30	100
Total			720	380	1100

**\*\* 4-6 weeks hand on training to be done after IVth Sem. Exams.**

### Proposed Scheme of Examination, w.e.f. January 2007 SEMESTER – VI

Sub. Code No.	Subject	Type	Examination Scheme		
			External	Internal	Total
IN3601	Communication Systems	Comp ulsory	100	50	150
IN3602	Fuzzy logic control	Comp ulsory	100	50	150
IN3603	Digital Signal Processing	Comp ulsory	100	50	150
IN3604	Instrument & System Design	Comp ulsory	100	50	150
IN3605	Micro-controller & Embedded systems	Comp ulsory	100	50	150
PR3606	Microcontroller Lab.	Comp ulsory	45	30	75
PR3607	Signal Processing Lab.	Comp ulsory	45	30	75
PR3608	Communication Engg. Lab.	Comp ulsory	30	20	50
PR3609	Project Work	Comp ulsory	70	30	100
Total			690	360	1050

### B.Tech. Instrumentation Scheme of Examination 4th Year Course

#### SEMESTER – VII

Sub. Code No.	Subject	Examination Scheme			
		Theo	Sess.	Total	Duration of Exam
IN4701	Optional - I*	100	50	150	3 hrs
IN4702	Biomedical Instrumentation	100	50	150	3 hrs
IN4703	Computer Graphics & CAD CAM	100	50	150	3 hrs
IN4704	Advance Process dynamics and Control	100	50	150	3 hrs
PR4705	Option – I Lab.	45	30	75	3 hrs
PR4706	Computer Graphics & CAD CAM Lab.	45	30	75	3 hrs
PR4707	Simulation lab.II	30	20	50	3 hrs
PR4708	Project Work (Case Study)	70	30	100	3 hrs
PR4709	Industrial Training **	70	30	100	1hr./st.
Total		660	340	1000	

**\*\* 6-8 week hand on training to be done after VIth Sem. Exams.**

#### SEMESTER – VIII

Sub. Code No.	Subject	Examination Scheme			
		Theo	Sess.	Total	Duration of Exam
IN4801	Optional - II*	100	50	150	3 hrs
IN4802	Project Planning Estimation & Assessment	100	50	150	3 hrs
IN4803	Engineering Materials	100	50	150	3 hrs
IN4804	Process Equipment Design	100	50	150	3 hrs
PR4805	Option – II Lab.	45	30	75	3 hrs
PR4806	Process control Lab	45	30	75	3 hrs
PR4807	Project Work (Major)	100	50	150	3 hrs
<b>Total</b>		<b>590</b>	<b>310</b>	<b>900</b>	

### Optional - I\*

- i. Flight Instrumentation
- iii. Power Plant Instrumentation
- v. Artificial Intelligence
- vii. Instrumental Methods of Analysis
- ix. Computer Controlled Instrumentation
- xi. Inertial Navigation & Control
- xiii. Advance Control System
- xv. Pneumatic and Hydraulic Instrumentation and Fluidics

### Optional- II\*

- ii. Nuclear Instrumentation
- iv. Remote Sensing
- vi. Robotics
- viii. Environmental Instrumentation and Safety
- x. Optical Instrumentation
- xii. Safety and Reliability
- xiv. Computer Control of Systems
- (iv) Parallel Process & real Time Operating System

\* Option to be offered will be decided by the department each year depending on the facilities available.

## Facilities Available

- I. Workshop facilities
  - (iii) Electronic Workshop
  - (iv) Mechanical Workshop
  - (v) Optical Workshop
  - (vi) Glass Blowing Workshop

### II. Library Facility

USIC right from the beginning has been making a collection of latest technical & text books covering all aspects/ topics and latest developments in the field of electronics, instrumentation, computers and control etc. Library has a stock of over four thousand publications and is housed in a spacious room with adequate furniture.

### III. Teaching laboratory facilities

The centre is fully equipped with Modern Computer & Electronic Lab., Microprocessor & Control lab. and Analytical Lab (Mossbauer, Laser Raman Spectrometer, SEM etc.) for teaching programme. Various computers have been purchased by the department and entire building of the department including the students laboratory has been put on LAN through these computers thus giving an online teaching method.

### **Placement Cell**

The course has direct job potential. Campus Placement facility for the students also exists in the Department leading to respectable placements of the passed out batches. Not only from the employment point of view but our students are performing fairly well also in higher education in India and Abroad. The List of students mostly selected through campus Placement are given below:

### **Placement Information for the year ( 2006-2007)**

Sr. No.	Name of the student	Placed in
1.	Shaurya Aggarwal	Flour Daniel
2.	Sabshyata Bashin	--do---
3.	Vibhuti	---do—
4.	Varun	--do---
5.	Vishal Mangla	---do—
6.	Sachin Gupta	Bechtel
7.	Devesh	--do—
8.	Neeharika	--do---
9.	Devender	Juidal
10.	Ramesh	--do—
11.	Gaurav Gupta	--do---
12.	Anshul Garg	ABB
13.	Prashant Paul	--do—
14.	Arvind	--do—
15.	Himanshu	---do—
16.	Karan Kathuria	--do—
17.	Vimal Chaudhary	--do—
18.	Shailja Goel	Punj Loyd
19.	Manjary Rustogi	--do—
20.	Manjeet singh	--do—
21.	Arnab Roy	--do—
22.	Manjeet Singh	Rockwell

### **Information on seminar and Conferences**

Seminar/Conferences organized by the department ( 2006-2007)

0. Workshop on Lab View held on Sept. 2005.

0. One day seminar on Thin client in April 2006.
0. Training programmes for faculty on MATLAB in July 2006.
0. Training programmes for faculty on AutoCAD in July 2006
0. Training programmes for faculty on Process Equipment Design in July 2006
0. Training programmes for faculty on Digital Signal Processing in July 2006
0. Training programmes for faculty on Digital Communication in July 2006
0. Training programmes for faculty on Electronic Workbench, Ultiboard and communication simulator in July 2006
0. Training programmes for faculty on Robotics in July 2006
0. Training programmes for Non technical staff on Electronic and Equipment maintenance in Oct. 2006
0. Training programme for Teaching and Non teaching staff on computer hardware and maintenance in Oct. 2006.

### **Achievement**

It is a matter of great pride that the department of USIC has been selected as one of the participating Institute for the up-liftment of the technical education under TEQIP Govt. of India (World Bank Project) and has received a grant amounting 7.68 crores for starting a New Course, M.Tech (Process Control) in the department and strengthening the existing B.Tech Instrumentation course.