Leveraging ICT in a Unique Way for Education – The RGUKT Experience

RGUKT - On Course of Providing Access of High Quality Engg Education to Rural Youth of AP

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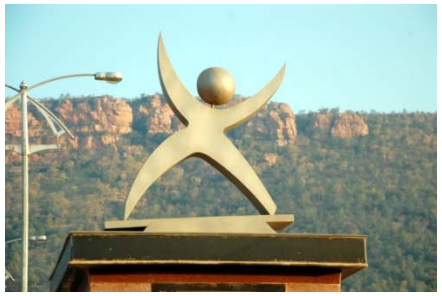
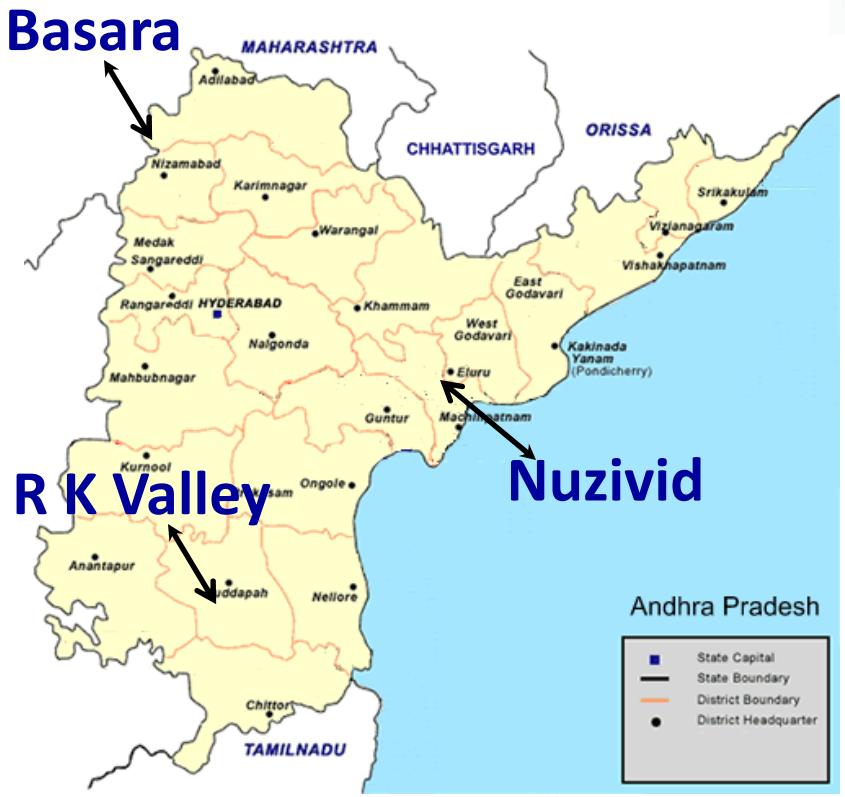
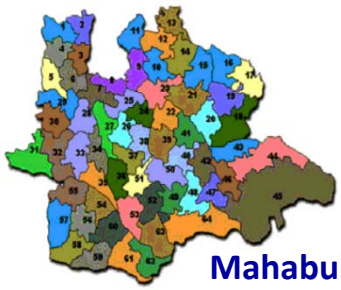


About RGUKT

- Established in 2008 by Govt. of A P
- Empowering the disadva-ntaged rural youth through high quality engg education
- 85% of seats for rural best (Mandal basis); 70% - Govt
- 2000 rural best students taken into each of the 3 IIITs every year
- Top 1% of those passing 10th class
- Free education, food, …



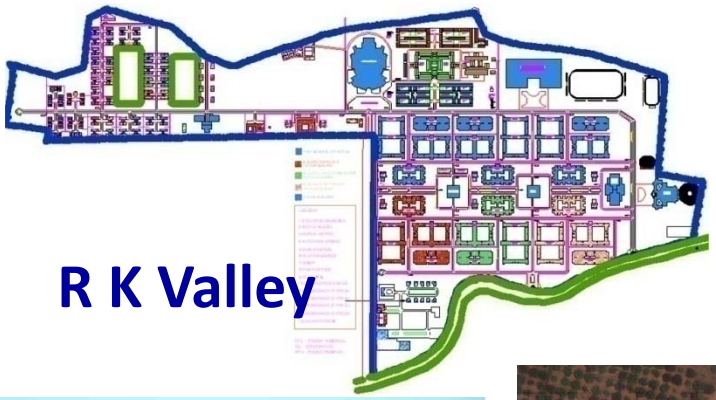


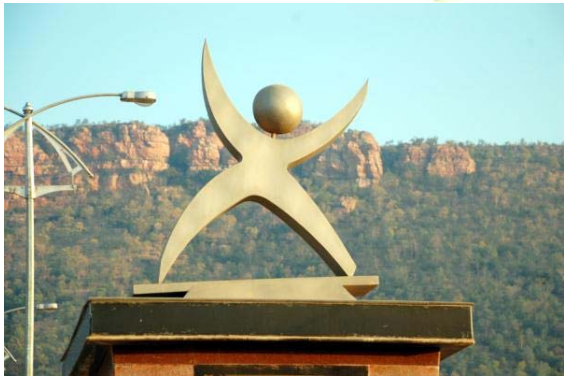
Mahabubnagar dt

Campus Infrastructure

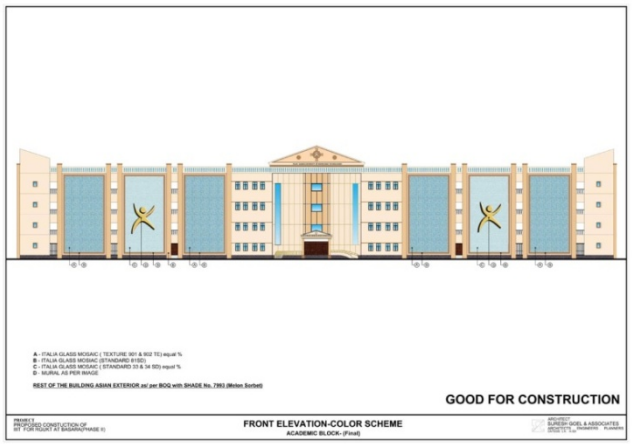
Basara

R K Valley





Nuzivid



Academic Programs @ RGUKT

- 6 years (PUC+BTech) with one Major in

  ECE / ME / CE / Chem Engg / Mat Sc.,/CSE

  Scope for one (or two) Minors Science / Humanities / Management and 2nd Major in CSE

- MTech in Computational Engg .

- A strong PhD programme from July 2011

The Objective

- Share the unique pedagogical exercise and overcoming of the scale problem.
- Share the experience with sister universities and society.
- Encourage the sister universities to adopt the mechanism and resources.
- Provide support to the NMEICT initiative

A Unique ICT Based Education
➔ Scale Problem

- ICT based education
- Pedagogy emphasizes self learning and learning by doing
- Dedicated laptop for every student
- 150 ICT enabled semi-virtual class rooms in each campus
- Three semester system

A Hybrid of Learning-by-Doing and Conventional Lecturing

Conventional
- **50 min class**

RGUKT's hybrid mode
- **45 min conv/video lecture +**
- **45 min browsing cum interactive +**
- **30 min problem solving**

- Video lecture is from the best of professor's in the country/abroad.
- Lecturing & Interaction session from v. good faculty.

The best of both methods

A Typical Class Room

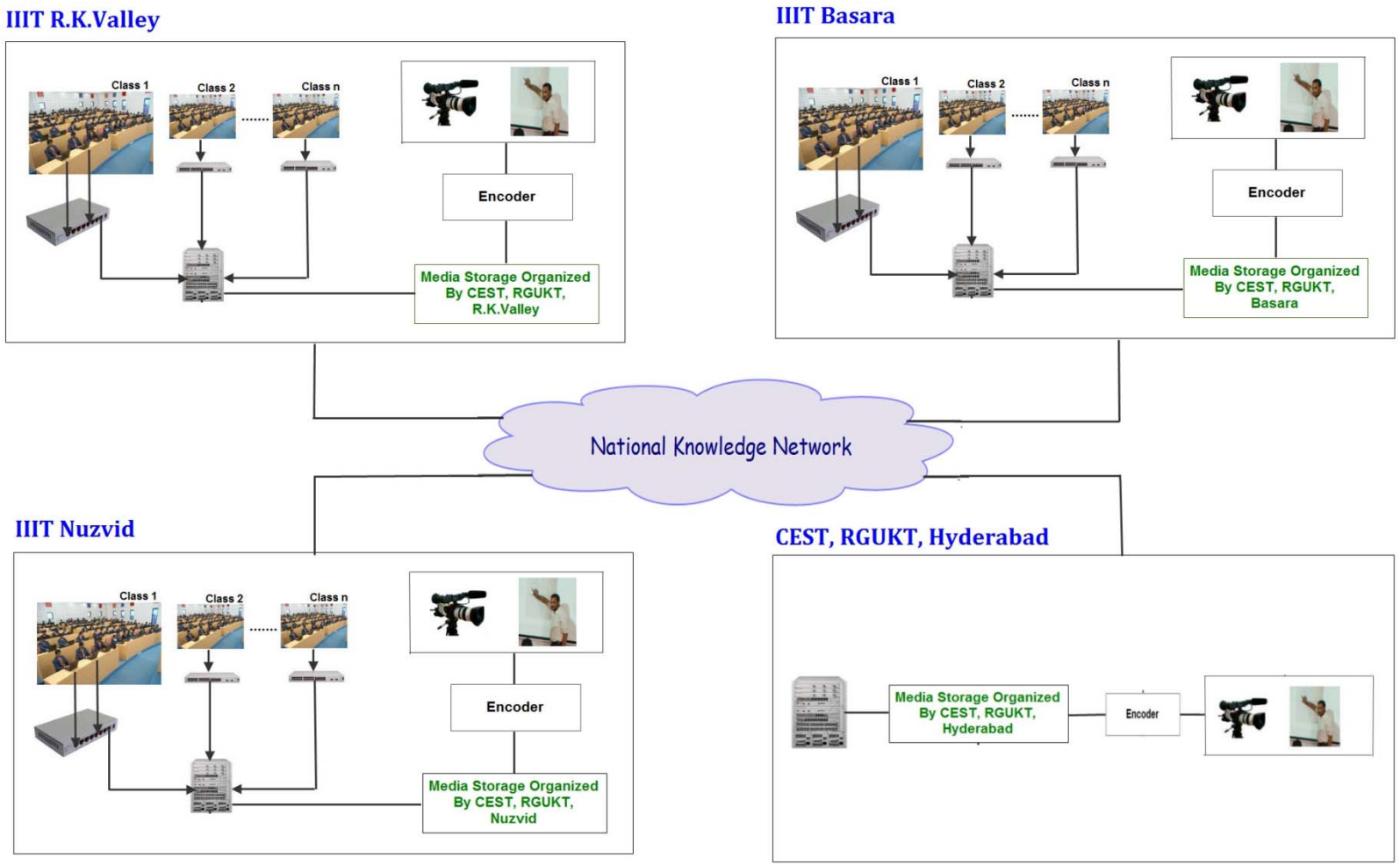
Actual Learning and Holistic Education

- Strong technical education supported by ICT and actual laboratories
- Human values
- Soft skills and Professional development
- Extra computer and Humanities courses

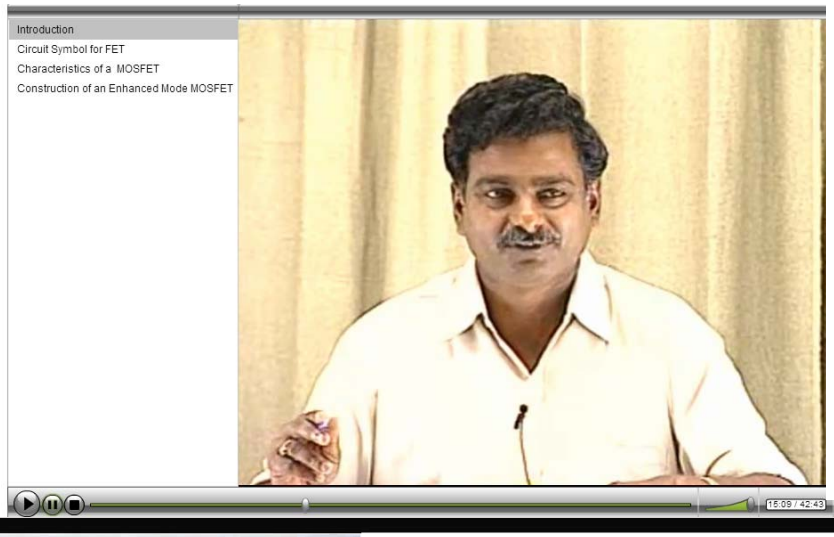
e-Resources Used in Class Rooms

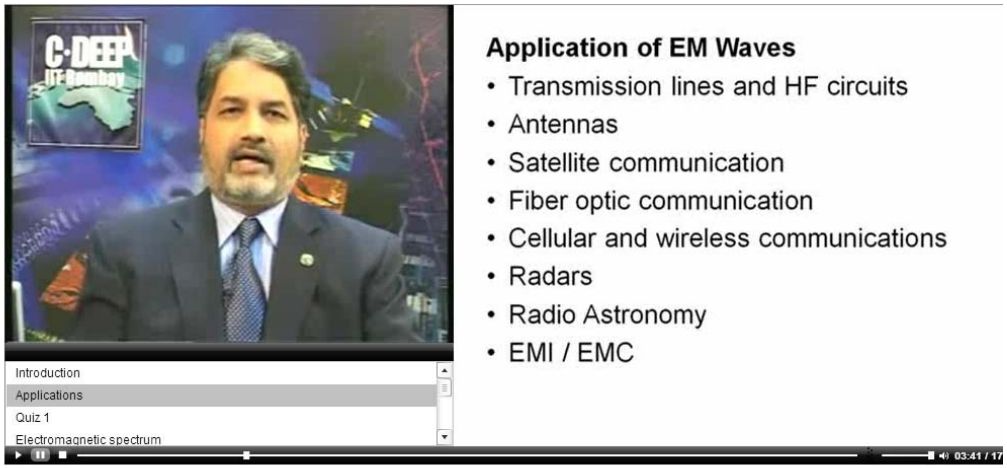
- Video courses from very selected experts
  - RGUKT's own courses
  - NPTEL courses
  - p-NPTEL courses
  - Other resources (MIT, public domain lectures)
- Traditional lectures
- e-content for browsing
  - RGUKT's own books, e-text books, NPTEL and p-NPTEL web courses
- e-journals, information on www

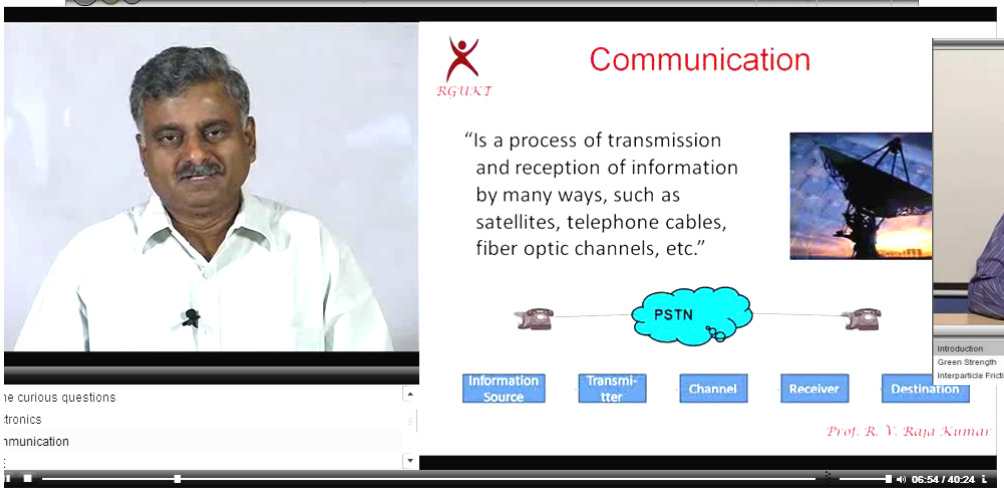
The IT Infrastructure

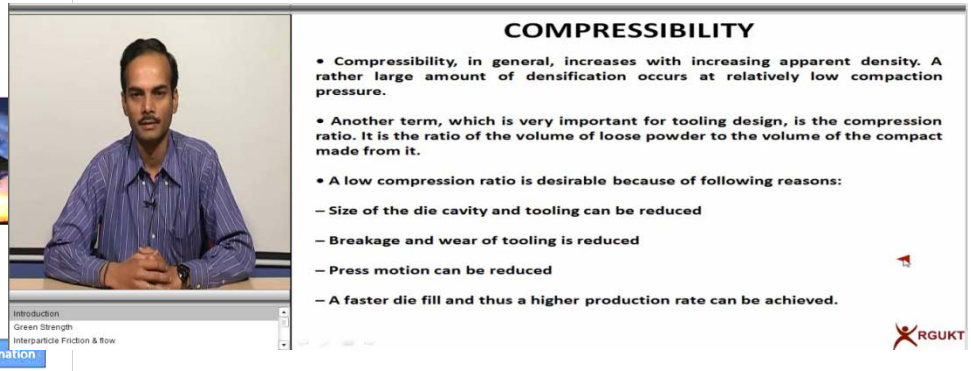


Full Video Courses Created by RGUKT, p-NPTEL, NPTEL….









Video Courses of E1 for ECE @ RGUKT

S No.	Subject	Videos Available for the subject	
		Video 1	Video 2
1	Mathematics - I	Prof. Satyanarayana, RGUKT	
2	Mathematics - II	Dr. K. Srinivasa Rao, RGUKT	
3	English	Dr. Sumita Roy,,OU, RGUKT	
4	Physics	Prof. Nageswara Rao, RGUKT	Prof. Ranade, IITB
5	Chemistry	LatProf. Mohan Rao, RGKT	Prof. Leelavathi, OU
6	Electrical Technology	Prof. Bhattacharya, IITKGP	Mr. Prashanth, RGUKT
7	Programming and Data Structures	Dr. P.P.Chakraborty, IITKGP	
8	Engineering Drawing	Dr. BVR Guptha for RGUKT	Mr. Ajith Nayak, RGUKT
9	Introduction to Manufacturing Process	Mr. Naga Prasad, RGUKT	
10	Engineering Mechanics	Dr. Suresh Akella	Mr. Satyadev, RGUKT

Video Courses for E1, Sem3 of ECE

S No.	Subject	Videos Available for the subject		
		Video 1	Video 2	Video 3
1	Database Management Systems	Dr. Somayajulu, Dr. Subrahmanyam, NIT Warangal	Dr. S. Srinath, IIIT Banglore	Prof. D. Janaki Ram, IITM
2	Managerial Economics	Dr. Nakula Reddy, OU		
3	Softskills			

E2 Video Courses of ECE

S No.	Subject	Videos Available for the subject
1	Introduction to Electronics	**Prof. R.V. Raja Kumar, IITKGP**
2	Network Theory	Dr. N.C. Jagan, OU for RGUKT
3	Semiconductor Devices	Prof. S. Karmalkar, IITM
4	Matrix Algebra	Dr. K. Srinivasa Rao, RGUKT

S No.	Subject	Videos Available for the subject	
		Video 1	Video 2
1	Analog Electronic Circuits	Prof. K. Radha Krishna Rao, IITM	
2	Signals and Systems	Prof. V. V. Rao , IITM & Prof R V Rajakumar (RGUKT)	
3	Electromagnetic Engineering	Prof. R.K. Shevgaonkar, IITB	
4	Design of Algorithms	Dr, Prahlad, IIITH (RGUKT)	Prof. Ranade, IITB
5	Probability and Stochastic Process	Prof. Satyanarayana, RGUKT	

Video Courses for E2, Sem3 of ECE

S No.	Subject	Videos Available for the subject
1	Internet Technology	Prof. Indranil Chkraborty, IITKGP
2	Business Communication	**Prof. Anjali Gera Roy, IITKGP**
3	General Studies	Prof. Nageswar, Dr. Sreedhar, OU
4	Foundations of Management	Dr. Sudhakar, RGUKT
5	Professional Development	Dr. Aruna, RGUKT
6	Introduction to Human Behavior in Organization	Dr. K Chakravarhi, IITKGP

E3 Video Courses of ECE

S No.	Subject	Videos Available for the subject		
		Video 1	Video 2	Video 3
1	Analog Communications	Prof. Surendra Prasad, IITD		
2	Digital Electronic Circuits	Prof. S. Srinivasan, IITM		
3	RF & Microwave Engg	Prof. K. R. Sharma, IITK		
4	Control Systems Engg	Prof. Mohan, IITKgp	Prof. M. Gopal, IITD	Prof. S.D. Agashe, IITB

S no	Subject	Videos Available for the subject	
		Video 1	Video 2
1	Digital Communications	Prof R V R Kumar & S Chakrabarty, IITKGP	Prof. Bikash Kumar, IITB
2	VLSI Design	Dr. Nandita Dasgupta, IITM	
3	Micro Controllers and Embadded Systems	S Chattopadhyay, IITKgp	
4	Digital Signal Processing	Prof. S.C. Dutta Roy, IITD	

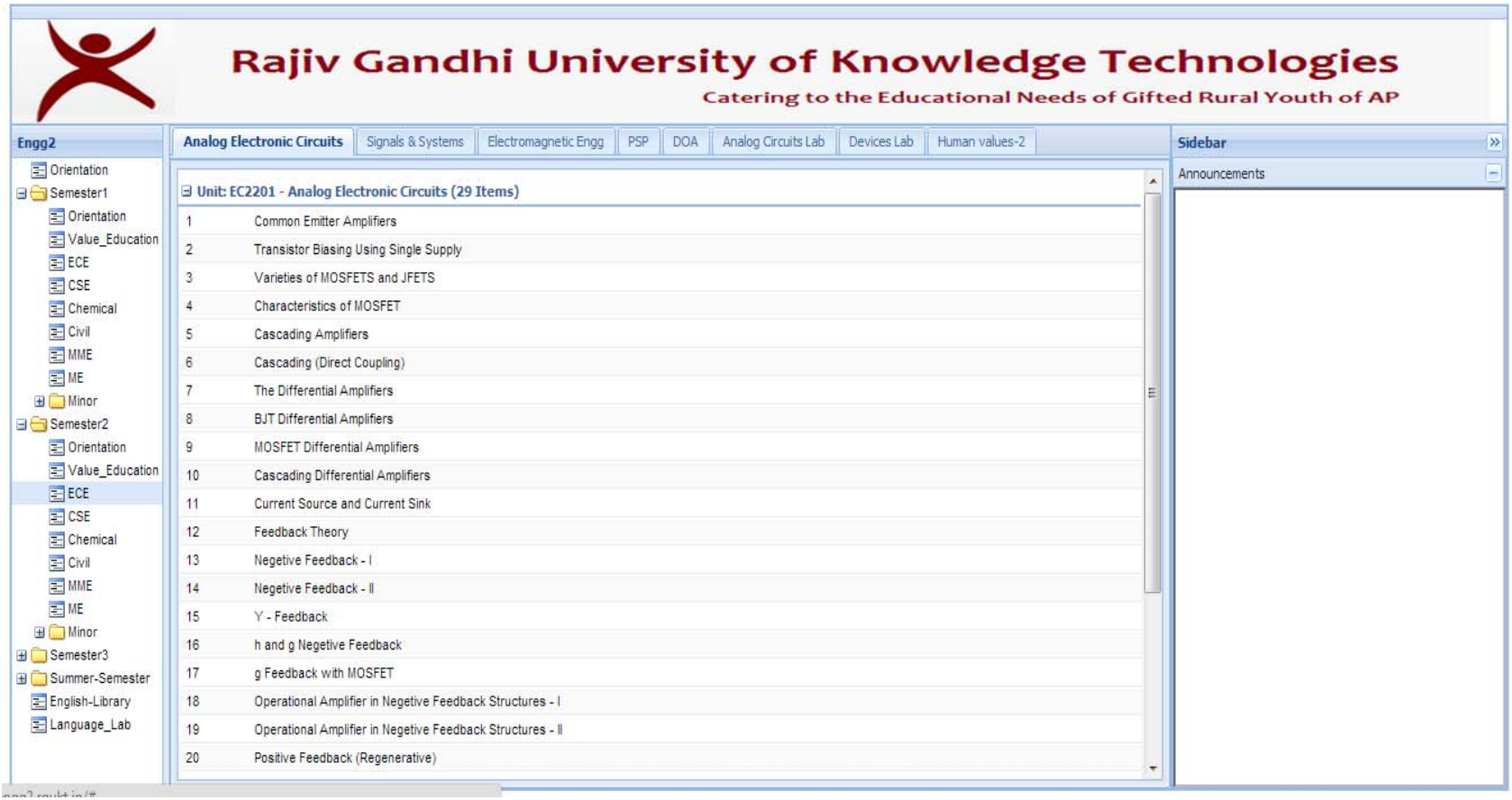
Video Courses for E4, Sem1 of ECE

S No.	Subject	Videos Available for the subject
1	Mobile Communications	**Prof. R.V. Raja Kumar, IITKGP**
2	Digital Image Processing	Prof. P.K. Biswas, IITKGP
3	Optical Communications	Prof. R.K. Shevgaonkar, IITB
4	Computer Networks	**Prof. Sujoy Ghosh, IITKGP**
5	Network Security	Debdeep Mukhopadhyay, IITKGP
6	Analog IC Design	Nagendra KrishnaPura, IITM
7	Data Mining	

Video Courses for E4, Sem2 of ECE

S No.	Subject	Videos Available for the subject
1	Digital VLSI Circuits	Prof. S. Srinivasan, IITM
2	RF Integrated Circuits	Dr. Shouribrata Chatterjee, IITD
3	Pattern Recognition	Prof. P.S. Sastry, IISC Banglore
4	Digital Voice and Picture Coding	**Prof. R.V. Raja Kumar, IITKGP**
5	Satellite Communication	
6	Information Theory and Coding	Prof. S.N.Merchant, IITB
7	Detection and Estimation Theory	

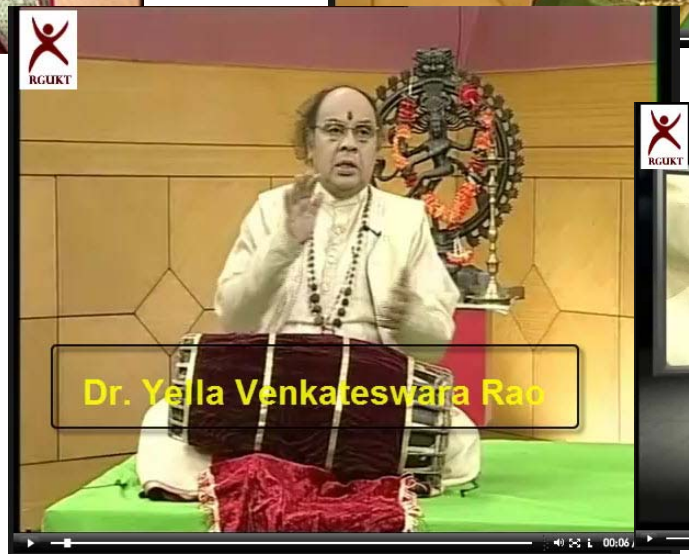
A View of the Typical Content Server



The Challenges Faced in Founding RGUKT

- Mammoth scale ➔ intake of 6000/3000 students per year.
- ICT based education ➔ Generating e-content in large scale,
- Creating infrastructure, Labs, curricula, regulations and academic culture,
- Raising faculty of high caliber amidst scarcity.
- ICT based education for fine arts and content generation.

Video Lecture Demos into Class Rooms



Benchmarking

- The I batch is in 4st year Engg
- 24,000 students, 450 ICT enabled classrooms
- Bright faculty ➔ IITs, IISc, UoH, other universities
- The students are bright, lively and young technocrats
- Benchmarking ➔ Curricula, regulations, academic practices and the other best practices of IIT Kharagpur and IIT system itself

Acid Tests and the Way Forward

- Employability and placement of 6000 students of the first batch.
- Performance in benchmark tests ➔ GATE, IES, CAT,…
- Sustaining faculty excellence and development.
- Consolidation.
- Continued financial support.
- Possible replication in other states.

Thank You