



Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 21001:2018 Certified

Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.
Phone No. +91 8645 - 350 200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2576129

18-04-2020

Webinar on Small Satellites-Technology Aspects and Procedures

Circular:

4/3/24, 3:12 PM

Mail - HOD-ECE - Outlook

ECE Webinar(1) on "Small Satellites-Technology Aspects and Procedures" on 18-04-2020 (Saturday)-Reg.

HOD-Department of Electronics and Communication Engineering <hod.ece@kluniversity.in>

Fri 17-04-2020 19:21

To:ECE Faculty <ecefaculty@kluniversity.in>;ALL HODS <hods@kluniversity.in>;All Deans <deans@kluniversity.in>;Suman Maloji <suman.maloji@kluniversity.in>;deanengg@klh.edu.in <deanengg@klh.edu.in>;ecehod@klh.edu.in <ecehod@klh.edu.in>;koteswararao@klh.edu.in <koteswararao@klh.edu.in>;director@klh.edu.in <director@klh.edu.in> Cc:PRINCIPAL - COE <principal.coe@kluniversity.in>;Vice Chancellor - KLU <vc@kluniversity.in>;PRESIDENT <president@kluniversity.in>

1 attachments (186 KB)

Webinar 71.jpg;

Respected Sir/Madam,

Our ECE department has initiated to conducted a series of webinars on cutting edge technologies and social issues etc. In the series of webinars, the first webinar is scheduled and the details are as follows.

Webinar: "Small Satellites-Technology Aspects and Procedures"

Speaker: Dr. K. Sarat Kumar, Professor, ECE Dept.

Expert Talk Series: 01

Date: 18-04-2020

Time: 11 AM

Register Here:



<https://forms.gle/96LVmrvGnUYpNa9D9>

	<p>Small Satellites-Technology Aspects and Procedures</p> <p>By Dr. K. Sarat Kumar, Professor, ECE Dept., KLEF</p> <p>forms.gle</p>
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Interested participants are requested to register using the above mentioned link. All HODs are requested to share the details in the respective department.

Thank You,

<https://outlook.office.com/mail/id/AAQkADUyZWWYVWZLTg2ODkiNGM0Mi1iYT12LTU1NGM4N2EwOTA4YgAQANuvfsmA8tBKvdKGS38J54U%3D> 1/2



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Poster:



Mark the Date
 18-04-2020
 11AM - 12 PM

Register Here
<https://forms.gle/96LVmrvGnUYpNa9D9>

KL | **ECE**
 (DEEMED TO BE UNIVERSITY) | Electronics & Communication Engineering

WEBINAR
 on
*Small Satellites
 Technology Aspects and Procedures*

SPEAKER
 Dr. K. Sarat Kumar
 Professor, ECE Dept.
 kksarat@kluniversity.in

Expert Talk Series **Talk 7**

Fig. Poster of webinar

1. Objective and discussions:

2. Small satellites, also known as smallsats, are becoming increasingly popular due to their lower costs, faster development times, and versatile applications. Here's an overview of the technology aspects and procedures associated with small satellites:

3. Types of Small Satellites:

- a. CubeSats: CubeSats are standardized small satellites based on a cube-shaped form factor, typically measured in units of 10 cm × 10 cm × 10 cm (1U). They can be stacked together for larger configurations like 2U, 3U, or even larger.
- b. NanoSats: Slightly larger than CubeSats, NanoSats typically range from 1 kg to 10 kg in mass and offer increased payload capabilities.
- c. MicroSats: MicroSats are larger than NanoSats, weighing between 10 kg to 100 kg, and can carry more sophisticated payloads.



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4. Key Technologies:

- a. Miniaturized Components: Small satellites utilize miniaturized electronics, including processors, sensors, and communication systems, to fit within their compact form factor.
- b. Solar Panels: Small satellites often use deployable solar panels to generate power for onboard systems.
- c. Attitude Control: Attitude determination and control systems (ADCS) are essential for orienting the satellite in space, typically using reaction wheels, magnetorquers, or thrusters.
- d. Communication Systems: Small satellites use compact communication systems for data downlink and uplink, often utilizing amateur radio bands, S-band, or X-band frequencies.
- e. Onboard Computers: Due to limited space and power, small satellites employ lightweight, radiation-hardened computers for onboard processing tasks.
- f. Propulsion Systems: Some small satellites incorporate propulsion systems for orbit maintenance, deorbiting, or maneuvering.

5. Launch Procedures:

- a. Piggybacking: Small satellites are often launched as secondary payloads on larger launch vehicles, a practice known as piggybacking or ridesharing. This reduces launch costs but may result in limited control over the satellite's orbit.
- b. Dedicated Launches: In some cases, small satellites may have dedicated launches tailored to their specific mission requirements, providing greater control over the orbit and deployment parameters.
- c. CubeSat Deployers: CubeSats are frequently deployed from dedicated CubeSat deployers, which release the satellites into space once the primary payload reaches its desired orbit.



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- d. Launch Integration: Small satellite developers work closely with launch service providers to ensure compatibility with the launch vehicle and adherence to safety and regulatory requirements.

6. Mission Operations:

- a. Ground Stations: Small satellite operators establish ground stations for communicating with their satellites, receiving telemetry data, and sending commands.
- b. Mission Planning: Mission operators plan satellite operations, including orbit maintenance, payload operations, and data collection schedules.
- c. Data Processing: Once data is received from the satellite, it undergoes processing and analysis to extract valuable information for scientific research, Earth observation, or other applications.
- d. Satellite Health Monitoring: Operators continuously monitor the health and status of the satellite, diagnosing any anomalies and implementing corrective actions as necessary.

7. Applications:

- a. Earth Observation: Small satellites are used for imaging, environmental monitoring, and disaster response.
- b. Communication: Small satellites can augment existing communication networks or provide connectivity to remote or underserved areas.
- c. Scientific Research: Small satellites enable scientific research in areas such as astronomy, space weather monitoring, and atmospheric studies.
- d. Technology Demonstration: Small satellites serve as platforms for testing new technologies and concepts in space.



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8. Overall, small satellites offer a cost-effective means of conducting space missions and have democratized access to space for a wide range of organizations, including universities, research institutions, and commercial entities. However, their small size and limited resources present unique challenges that require innovative solutions in design, development, and operation.

Online Link

<https://us02web.zoom.us/j/86947338968?pwd=cnFXaWtZcm5BK2hTbFhmOFpXZFZoUT09>

Number of participants: 42

EK	E kiran kumar			>
FM	FEROZ MOHAMMAD			>
GV	GORLA VENKATA GANESH			>
IV	I Veeraraghava Rao (5138)			>
I	Ibrahim's iPad			>
KS	K SureshKumar			>
	K V K V L Pavan Kumar			>
K	K.V.Sowmya			>
KM	kasiprasad M			>
LS	L S P SAIRAM			>
LP	Lakshmi Prasanna J			>
ML	M LAKSHMANA KUMAR			>

Chats Invite Mute All Unmute All

Fig. List of students



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List of the Participated Students:

S. No.	Roll No	Name
1	180040083	DASARI SOWMYA
2	180040140	CHANNA SRICHARAN
3	180040060	KADAVAKOLLU YAMINI PRASANNA
4	180040071	AMBATI JAYALAKSHMI
5	180040124	GANJI WILLIAM CAREY
6	180040078	YAMALA PRUDHVI NARAYANA
7	180040098	KANDIMALLA JYOTHSNA
8	180040039	DUDDUPUDI MOUNIKA
9	180040156	NUTHANAPATI LAYA SREE
10	180040750	GANNAVARAM VENKATA MADHUMITHA
11	180040529	POTTEPALEM VENKATA VARUN
12	180040622	SATYA SAI NIHAAL VENKATASASTRY D
13	180040176	SHAIK MOHAMMED JUNAID
14	180040050	YELLALA SAI KOUSIK
15	180040009	SWARNA VENKATA NAGA SAI BHARADWAJ
16	180040148	NAMRATHA MADIREDDY
17	180040175	BOMMU PRAVALLIKA
18	180040540	PATHURU SAI CHANDANA
19	180040147	IDUPULAPATI VENKATA SAI ESHWAR
20	180040177	BOMMISSETTY ANANTHA SAI MURALI KRISHNA
21	180040519	CHANDANA SAI VARSHA KOGANTI
22	180040662	GADDAM VAISHNAVI
23	180040679	MANNEPALLI VENKATA RAMARAJU
24	180040165	DALALI ARIF
25	180040090	MAKKAPATI GANESH
26	180040700	NARAHARI MANIDEEP
27	180040686	ELAPROLU GEETHIKA
28	180040166	RAMACHANDRAM BHAVYA
29	180040239	MUDIGONDA VAMSI JWALA RAMALINGESWAR
30	180040603	PAIDIMARRI VENKATA SAI ASWITHA
31	180040639	KARPURAM VENU
32	180040034	GUDALA SAI NIKHIL
33	180040584	V L H SAI ABISHEK KARLAPALEM
34	180040253	RAYAPATI BHARATH SAI SOMESH
35	180040018	BARLA HARSHA VARDHAN
36	180040162	DIVVELA VRDSS HARSHIL
37	180040219	KANUGOLU CHARITHA SAI AMULYA
38	180040754	LIKHITA SAI NELAPUDI
39	180040485	RANGA P L N VASISTA
40	180040683	SOLASU CHARAN



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41	180040049	DEVINENI SHREE LAKSHMI MEENAKSHI
42	180040108	GUNNAM PURNA CHANDRIKA


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