



**Report on  
Faculty Development Programme  
On**



**“Recent Trends in Mobile Computing with Real Time Approach”  
(Under the aegis of “IETE Pune Centre” and “IEEE Communication Society Pune  
Chair”)**

at

Department of Electronics and Telecommunication Engineering  
Bhivarabai Sawant Institute of Technology & Research Wagholi, Pune

<b>Name of The Programme</b>	<b>Faculty Development Programme “Recent Trends in Mobile Computing with Real Time Approach” Under the aegis of “IETE Pune Centre” and “IEEE Communication Society Pune Chair”</b>
<b>Date</b>	27 <sup>th</sup> March 2023 to 1 <sup>st</sup> April 2023
<b>Mode</b>	Online
<b>Organizer</b>	Department of Electronics and Telecommunication Engineering of Bhivarabai Sawant Institute of Technology & Research Wagholi, Pune
<b>Programme Convenor</b>	Dr. Y. S. Angal, HOD (E&TC)
<b>Programme Co-Ordinator</b>	Asst. Prof. S. V. Malge (E&TC) Asst. Prof. P. V. Gawade (E&TC) Asst. Prof J. Y. Suryawanshi (E&TC)
<b>Participants</b>	104 Participants

The FDP aims to provide opportunities to faculty members, research scholars and post graduate students to enrich their teaching skill and research in the field of Mobile Computing. The Programme also intends to develop the knowledge of participants in the relevant field for inculcating learning values in students and guiding and monitoring their progress. The FDP was attended by 104 participants from faculty members of Electronics and Telecommunication department, PG students and Research scholar.

**FDP Objective:**

<b>Sr. No.</b>	<b>FDP Objective</b>
<b>1</b>	This FDP provides a platform to learn Wireless technologies and planning Ad-hoc Network.
<b>2</b>	An ability to study the basics of wireless, cellular technology and the working of Mobile IP, ad hoc network, features of mobile operating systems.
<b>3</b>	An ability to understand the use of M-Commerce application

# FDP Brochure:

<p><b>CHIEF PATRON</b>  <b>Hon. Prof. Dr. T. J. Sawant</b>                  Public Health &amp; Family Welfare Minister,                  Govt. of Maharashtra,                  Founder Secretary JSPM &amp; TSSM Group of                  Institutes, Pune  <b>Hon. Shri. Giriraj T. Sawant</b>                  Secretary, TSSM Group of Institutes Pune  <b>Hon. Shri. Rushiraj T. Sawant</b>                  Director, JSPM Group of Institutes, Pune</p> <p><b>PATRON</b>  <b>Dr. S. V. Admane</b>                  Campus Director, Wagholi, Pune  <b>Dr. T. K. Nagaraj</b>                  Principal, BSIOTR</p> <p><b>PROFESSIONAL BODY                  (ADVISORY COMMITTEE)</b>                  1) Dr. D. S. Bormane                  Member, Governing Council, IETE, New Delhi                  2) Dr. Makarand M. Jadhav                  Chapter Chair, IEEE Communication Society, Pune Chair                  3) Dr. V. V. Shete                  Chairman, IETE Pune Centre                  4) Dr. D. G. Bhalke                  Secretary, IETE Pune Centre</p> <p><b>CONVENER</b>  <b>Dr. Y. S. Angal</b>                  Prof &amp; Head, Electronics &amp;                  Telecommunication Engineering, BSIOTR                  Email: ysangal_entc@jspmbiotr.edu.in                  Contact Number: 7057150817</p> <p><b>COORDINATORS</b>                  1) <b>Suchipriya V. Malge</b>                  Assistant Professor (E&amp;TC)                  Mobile No.- 9518571164                  Email: svmalge_entc@jspmbiotr.edu.in                  2) <b>Poonam V. Gawade</b>                  Assistant Professor (E&amp;TC)                  Mobile No.- 9890137095                  Email: pvgawade_entc@jspmbiotr.edu.in</p>	<p><b>RESOURCE PERSON</b>                  1) <b>Dr. Makarand M. Jadhav</b>                  Prof &amp; Head (E&amp;TC), NBN STIC, Pune                  2) <b>Dr. Vijay M. Birari</b>                  Prof &amp; Head (E&amp;TC), MVP'S, KBT COE, Nashik                  3) <b>Dr. Araddhana A. Deshmukh</b>                  Prof &amp; Head (AI &amp; DS), MMCOE, Pune                  4) <b>Dr. S. K. Jagtap</b>                  Prof &amp; Head (E&amp;TC), SKNCOE, Pune                  5) <b>Dr. Anuradha S. Deshpande</b>                  Professor, (E&amp;TC) JSPM's ICOER, Pune                  6) <b>Dr. Vandana Rohokale</b>                  Prof &amp; Head (E&amp;TC), SITS, Narhe, Pune                  7) <b>Dr. Gitimayee Sahu</b>                  Sr. Manager, Jio Platforms Ltd, Mumbai                  8) <b>Dr. R. R. Ilkarkar</b>                  Prof (E&amp;TC), AISSMS COE, Pune</p> <p><b>REGISTRATION DETAILS</b>                  • For IETE &amp; IEEE Communication Society :- 100/-                  • Others :- 200/-                  For Online Registration:  <a href="https://forms.gle/DgZGk3RwM7tudCQ38">https://forms.gle/DgZGk3RwM7tudCQ38</a>                  Whatsapp group link:  <a href="https://chat.whatsapp.com/JnzhEHNcgICw7bpd380E">https://chat.whatsapp.com/JnzhEHNcgICw7bpd380E</a>  <b>Mode of Conduct: Online 2.00 pm to 5.00 pm</b></p> <p><b>QR Code for Payment</b></p>  <p><b>Certificate of Participation will be given to the Registered Participant at the end of FDP After MCQ Test.</b>  <b>NOTE: 80% Attendance is Mandatory.</b></p>	<p><b>JSPM's</b>  <b>Bhivarabai Sawant</b>  <b>Institute of</b>  <b>Technology &amp;</b>  <b>Research, Wagholi</b>                  Accredited by NBA &amp; NAAC  <b>One Week Online</b>  <b>Faculty Development Program</b>                  On  <b>"Recent Trends In Mobile Computing</b>  <b>With Real Time Approach"</b>                  (27th March to 1st April 2023)                  Organized By                  Department of Electronics &amp;                  Telecommunication Engineering In                  Association with "IETE Pune Centre" and                  "IEEE Communication Society Pune Chair"</p> <p><b>IEEE ComSoc</b>                  IEEE Communications Society                  Pune Chapter Engineer</p> <p><b>ADDRESS OF INSTITUTE</b></p>  <p>JSPM's                  Bhivarabai Sawant Institute of Technology &amp;                  Research Pune-412207 (Maharashtra)                  Gat No.720 (1&amp;2), Pune-Nagar Road, Wagholi,                  Pune - 412207                  Phone: (020) 67335100, Fax No. (020)-22933424                  Website: www.jspmbiotr.edu.in</p>
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<p><b>ABOUT JSPM</b>                  Jayawant Shikshan Prasarak Mandal (JSPM) is established in 1998 with the objective of creating center of excellence for education in the field of Engineering, Medical, Pharmacy, Management etc. JSPM Group of Institutes has been successful in establishing Best Engineering, MBA, MCA, high Pharmacy colleges and Schools, spread across six campuses in Pune. JSPM imparts quality education through right curriculum and innovative teaching methodologies at all its campuses. JSPM Group of Institutes has evolved from single institute to 75+ institutes, spread in the vicinity of Pune. JSPM provides students a vibrant academic experience that adheres to stringent international quality standards, imbues life skills among its students, and prepares them to take up competitive careers and to be successful in life.</p> <p><b>ABOUT THE INSTITUTE</b>                  JSPM's Bhivarabai Sawant Institute of Technology and Research established in 2009, believes in practicing various student centric teaching learning methodologies to impart quality engineering education to students. The Institute has been approved by the All India Council for Technical Education (AICTE), New Delhi and affiliated to SPPU Pune. The institute has been accredited by NAAC and three programs are accredited by NBA. The institute is located in Wagholi in lush green and well maintained campus which is surrounded by industries and IT companies to provide an opportunity for more Industry-Institute-Interaction. The Institute provides conducive environment for the holistic development of individual skills and personality development.</p> <p><b>INSTITUTE VISION</b>                  Satisfy the aspirations of youth forces, who want to lead nation towards prosperity through techno-economic development.</p>	<p><b>INSTITUTE MISSION</b>                  To provide, nurture and maintain an environment of high academic excellence, research and entrepreneurship for all aspiring students, which will prepare them to face global challenges maintaining high ethical and moral standards.</p> <p><b>ABOUT THE DEPARTMENT</b>                  The department is accredited by NBA. The department has 60 intake (UG level) and 24 (PG Level) with aim to provide students the lifelong learning and leadership skills that enable them to grow in their professions and advance in positions of responsibility by effective Industry-Institute Interaction. The department has well equipped state of the art lab with modern infrastructure and ICT enabled facilities. The department has well experienced faculty.</p> <p><b>DEPARTMENT VISION</b>                  To emerge as a department of repute compatible to the changing needs of society at large.</p> <p><b>DEPARTMENT MISSION</b>  <b>M1:</b> To cultivate creativity and innovativeness in teaching learning process for developing competent professionals.  <b>M2:</b> To equip graduating students with skill sets to meet current and future demands of industry, academia and society through well designed curriculum.</p> <p><b>PROGRAM EDUCATIONAL OBJECTIVE (PEO'S)</b>  <b>PEO-1:</b> Ability to pursue professional career.  <b>PEO-2:</b> An ability to adopt rapid changes in core &amp; allied domain of E&amp;TC Engineering fulfilling industrial &amp; societal needs.  <b>PEO-3:</b> An ability to deal with societal problems ethically delivering sustainable solution.</p>	<p><b>WORKSHOP OBJECTIVE</b>                  1. To learn Wireless technologies and study the basics of wireless, cellular technology, working of Mobile IP, ad hoc network, features of mobile operating systems.                  2. To understand the use of M-Commerce application.</p> <p><b>COURSE CONTENTS</b></p> <ul style="list-style-type: none"> <li>• Mobile Communication Technologies</li> <li>• Multiplexing</li> <li>• Spread spectrum</li> <li>• GSM architecture</li> <li>• Generations of Mobile Communication Technologies</li> <li>• Handover</li> <li>• GPRS architecture</li> <li>• 5G architecture</li> <li>• Ad-Hoc Networking</li> <li>• Transport Layer</li> <li>• Mobile IP</li> <li>• Fading Channels</li> <li>• Mobile OS</li> <li>• Recent trends in Telecommunication Industries</li> <li>• Computational Intelligence in Mobile Computing</li> </ul> <p><b>ORGANIZING COMMITTEE</b></p> <ul style="list-style-type: none"> <li>• Dr. Anil Wanare : 73500 08708</li> <li>• Meenakshi Annamalai : 77988 47035</li> <li>• Yogesh Bahadwar : 98933 44915</li> <li>• Nilesh Mohota : 90110 00809</li> <li>• Manoj Sonune : 94211 22463</li> <li>• Aniket Gunjal : 98508 94989</li> <li>• Sneha Dhare : 97304 13463</li> </ul>
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## Inaugural Session:

<b>Inaugural Session</b>	
<b>Date</b>	<b>27th March 2023</b>
<b>Time</b>	<b>1:45 PM</b>

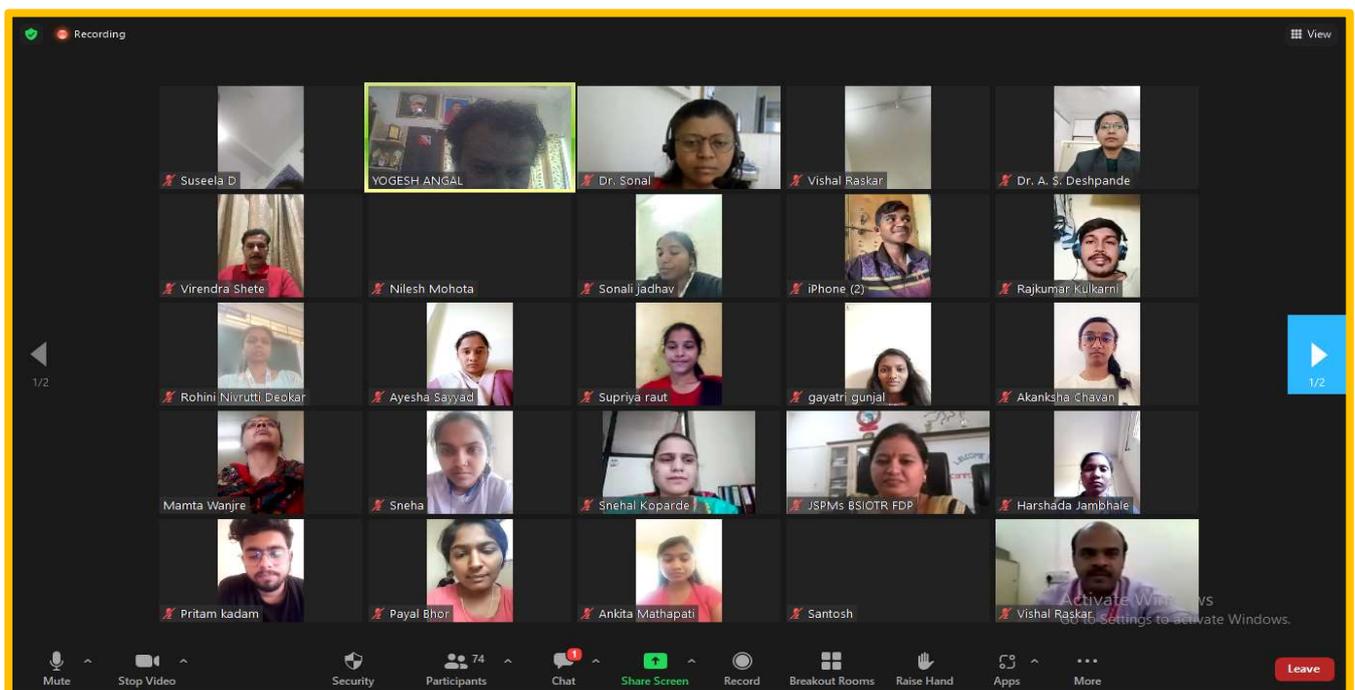
The esteemed personalities present on the inauguration of the Programme:

Dr. V.V. Shete	Chairman, IETE, Pune Centre	Chief Guest
Dr. M. M. Jadhav	Chair, IEEE Communication Society, Pune Chapter	Chief Guest
Dr. T.K. Nagaraj	Principal, BSIOTR	Host
Dr. Y. S. Angal	HOD(E&TC), BSIOTR	Host

In welcome speech, Hon. Principal Dr. T. K. Nagaraj shared his views with the faculty participants that if faculty wants to develop themselves and their students, then attending such faculty development programmes would enhance their skills of teaching concepts practically. Sir further shared that it helps to improve the performance of faculty in teaching and highlighted the importance and objectives of organizing faculty development programmes. He briefed the participants about the subjects chosen for the FDP and highlighted the reasons and importance of the same. In the inaugural speech, Hon. Dr. V.V. Shete shared his views on faculty development. He further added that this programme will provide special benefits to faculty members. The inauguration programme ended with vote of thanks by Mrs. Jayshree Suryawanshi.



Inaugural Session of the FDP with Dr. V.V. Shete Chairman, IETE, Pune Centre and Dr. M. M. Jadhav Chair, IEEE Communication Society, Pune Chapter.



<b>Date</b>	<b>27th March 2023 (Day One)</b>
<b>Session</b>	<b>One</b>
<b>Topic</b>	<b>Basic of Mobile Computing</b>
<b>Resource Person</b>	<b>Dr S. K. Jagtap Professor and HOD(E&amp;TC), SKNCOE, Pune</b>
<b>Time</b>	<b>2:00 PM To 3:30 PM</b>

**Service Mobility:**

- User should be able to move from one service to another.
- Example could be a user is writing a mail. To complete the mail user needs to refer to some other information. In a desktop PC, user simply opens another service (browser) and moves between them using the task bar. User should be able to switch amongst services in small footprint wireless devices like in the desktop.

**Host Mobility:**

- The user device can be either a client or server.
- When it is a server or host, some of the complexities change.
- In case of host mobility the mobility of IP needs to be taken care of.

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGG 11

**Traffic Telematics Systems**

Main Office Content Provider ↔ ATM ↔ Internet

Infrastructure ↔ Beam Radio, ISDN ↔ Main Office Content Provider

Infrastructure ↔ Radio Infrared ↔ Car 1 ↔ GSM ↔ Car 2

Car 1 ↔ GSM ↔ Internet

Car 2 ↔ GSM ↔ Internet

Internet ↔ GSM, RDS/TMC, DAB ↔ Car 1

Internet ↔ GSM ↔ Car 2

DAB: Digital Audio Broadcast  
RDS/TMC: Radio Data System/Traffic Message Channel

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGG 20

Dr S. K. Jagtap Professor and HOD E&TC), SKNCOE, Pune has delivered an interactive lecture on “Basic of Mobile Computing”. In this session participants were learned the Applications of Mobile Computing- Generations of Mobile Communication Technologies, Multiplexing: Spread spectrum, MAC Protocols: SDMA, TDMA, FDMA, and CDMA.

Date	27th March 2023 (Day One)
Session	Two
Topic	Introduction to 5G & Recent trends in Telecommunication Industries
Resource Person	Dr. Anuradha S. Deshpande Professor, E&TC, JSPM's ICOER Wagholi, Pune
Time	3:30 PM To 5:00 PM

The screenshot shows a Zoom meeting interface. At the top, it says "Recording..." and "You are viewing Dr. A. S. Deshpande's screen". The main content is a presentation slide with the following text:

JSPM's Bhivarabai Sawant Institute of Technology & Research, Wagholi  
**Faculty Development Program**  
**Recent Trends in Mobile Computing with Real Time Approach**  
 in Association with IETE & IEEE Communication Society  
 [27th March to 1st April 2023]

On the right, there is a video feed of Dr. A. S. Deshpande, a woman with glasses, smiling. Below the video feed, it says "Remove Pin" and "Dr. A. S. Deshpande". At the bottom of the Zoom window, there is a toolbar with icons for Unmute, Start Video, Security, Participants (65), Chat, Share Screen, Pause/Stop Recording, Breakout Rooms, Raise Hand, Apps, More, and a red Leave button.

The screenshot shows a Zoom meeting interface. The main content is a presentation slide with the following text:

## Key Enabling Technologies for 5G

### Device Centric Architecture

- Device-centric architecture is an important aspect for fifth generation (5G) networks.
- The current cellular systems are base station-centric where the base-station (BS) is responsible for resource allocation. The BS allocates resources to users based on their channel state information (CSI) and feedback. This resource allocation process increases load at the BS side resulting in more time consumption. This decreases the overall network throughput and increases delay in resource allocation.
- Therefore, a device-centric resource allocation scheme is proposed for D2D users. In this scheme, interested D2D pairs can allocate the resource to themselves.

At the bottom left of the slide, it says "27" and "Dr. A. S. Deshpande". At the bottom right, it says "3/27/2023". On the right side of the Zoom window, there is a list of participants: JSPMs BSIOTR F..., JSPMs BSIOTR FDP, Poonam Gawade, Suseela D, Harshada Jamb..., and Jyoti Bandal. Below the list, there is a video feed of Dr. A. S. Deshpande.

An informative lecture on “Introduction to 5G & Recent trends in Telecommunication Industries” was discussed by Dr. Anuradha S. Deshpande Professor, E&TC, JSPM’s ICOER Wagholi, Pune. In this session participants were learned the Introduction of 5G, 5G –Architecture, Key Enabling Technologies for 5G and Recent trends in Telecommunication Industries.

Date	28th March 2023 (Day Two)
Session	One
Topic	Ad-Hoc Networking
Resource Person	Dr. Araddhana A. Deshmukh Head& Associate Professor, AI & DS Department, MMCOE, Pune
Time	2:00 PM To 5:00 PM

The screenshot shows a Zoom meeting in progress. The main content is a presentation slide titled "Recent Trends In Mobile Computing With Real Time Approach". The slide is from the Department of Electronics and Telecommunication Engineering at BHIVARABAI SAWANT INSTITUTE OF TECHNOLOGY AND RESEARCH, WAGHOLI PUNE-412207 (BSIOTR). The resource person for the session is Dr. Araddhana A. Deshmukh, Head & Professor, AI & DS Department, MMCOE Pune. The topic is Ad-Hoc Networking. The date is 28 March 2023, Day 2, with timings from 2pm to 5pm. The slide also mentions Dr. Prof. T.J.Sawant as the Founder Secretary of JSPM Pune and Hon. Shri. Rushiraj T. Sawant as the Director of JSPM Group of Institutes, Pune. The slide footer lists Dr. Y.S. Angal as the FDP Convener, HOD E&TC, BSIOTR, with contact number 7057150817.

On the right side of the Zoom interface, there is a list of participants: YOGESH ANGAL, Poonam Gawade, Dr. Araddhana Deshmukh, JSPMs BSIOTR FDP, harsha bhamare, Trupti Pawase, Dr. Priyanka Singh, Anuradha Pandit, Suseela D, Vipin Vihute, Sukruti Taori, and Malge S V.

The screenshot shows a Zoom meeting displaying a slide titled "Improved Throughput with Increased Mobility". The slide contains a diagram illustrating network mobility. It shows three stages of a network topology where nodes A, B, C, and D are connected. In the first stage, A is connected to B, B to C, and C to D. In the second stage, A moves away from B, breaking the connection between A and B. In the third stage, A moves closer to D, forming a new connection between A and D.

The slide lists the following points:

- Low speed:** (Route from A to D is broken for ~1.5 seconds)
  - When TCP sender times after 1 second, route still broken.
  - TCP times out after another 2 seconds, and **only then resumes**
- High speed:** (Route from A to D is broken for ~0.75 seconds)
  - When TCP sender times out after 1 second, route is repaired
- TCP timeout interval somewhat (not entirely) independent of speed
- Network state at higher speed may sometimes be more favorable than lower speed

On the right side of the Zoom interface, there is a list of participants: JSPMs BSIOTR F..., JSPMs BSIOTR FDP, Poonam Gawade, Pooja Ramesh S..., Pooja Ramesh Sarode, YOGESH ANGAL, YOGESH ANGAL, Dr. Araddhana..., Dr. Araddhana Deshmukh, Bhausaheb Shin..., and Bhausaheb Shinde\_20...

Dr. Araddhana A. Deshmukh Head& Associate Professor, AI & DS Department, MMCOE, Pune has delivered an informative lecture on “Ad-Hoc Networking”. In this session participants were taught Mobile IP, DHCP, AdHoc, Proactive protocol-DSDV, Reactive Routing Protocols: DSR, AODV, Hybrid routing: ZRP, Multicast Routing: ODMRP, Vehicular Ad Hoc networks VANET, MANET Vs VANET: Security

Date	29th March 2023 (Day Three)
Session	One
Topic	Mobile IP and Transport Layer
Resource Person	Dr. Vijay M. Birari Professor and HOD(E&TC) NDMVP KBTCOE, Nashik.
Time	2:00 PM To 5:00 PM

**JAYAWANT SHIKSHAN PRASARAK MANDAL's (JSPM's)**  
**BHIVARABAI SAWANT INSTITUTE OF TECHNOLOGY AND RESEARCH, WAGHOLI PUNE-412207 (BSIOTR)**  
 (Approved by AICTE New Delhi, DTE Mumbai, Govt. of Maharashtra and Affiliated to Savitribai Phule Pune University)  
 Accredited NBA & NAAC  
**Department of Electronics and Telecommunication Engineering**  
 is Organizing one Week FDP(Online) In Association with IETE Pune Center & IEEE Communication Society Pune Chapter  
 On

**"Recent Trends In Mobile Computing With Real Time Approach"**

Date: 29 March 2023 Day: 3  
 Timings: 2pm to 5pm

**Resource Person for Session**  
**Dr. Vijay M. Birari**  
 Professor and HOD(E&TC), NDMVP KBTCOE, Nashik  
 Topic: Mobile IP and Transport Layer

Dr. Prof. T.J.Sawant  
 Founder Secretary, JSPM Pune

Hon. Shri. Rushiraj T. Sawant  
 Director, JSPM Group of Institutes, Pune

Dr. Y.S. Angal (FDP Convener, HOD E&TC, BSIOTR), Contact: 7057150817

**Overview of Traditional TCP**

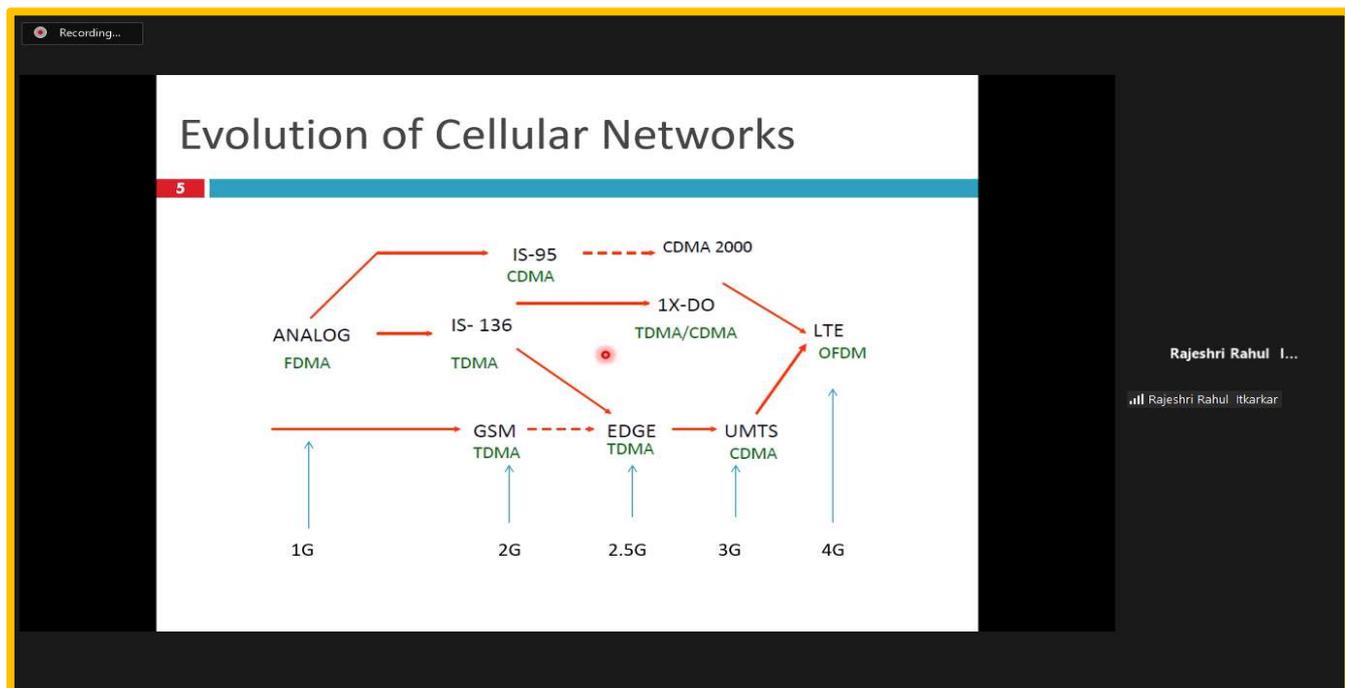
Figure 9.2  
 Socket and state migration after handover of a mobile host

The diagram illustrates a mobile host moving between two access points (Access point<sub>1</sub> and Access point<sub>2</sub>) connected to the Internet. Arrows indicate the process of socket migration and state transfer from the first access point to the second, and then to the Internet. A 'Mobile host' is shown moving between the two access points.

Dr. V. M. Birari 3/29/2023

Dr. Vijay M. Birari Professor and HOD(E&TC) NDMVP KBTCOE, Nashik, has illuminated on “Mobile IP and Transport Layer”. In this session participants were gained with the knowledge of the on Mobile IP: Need of mobile IP, IP packet delivery, Agent Discovery, Registration, Tunnelling and encapsulation, Route optimization, IP Handoff. Transport Layer: Overview of Traditional TCP and implications of mobility control. Improvement of TCP: Indirect TCP, Snoop TCP, Mobile TCP, Fast Retransmit/fast recovery, Time-out freezing, Selective retransmission, Transaction-oriented TCP.

Date	30th March 2023 (Day Four)
Session	One
Topic	Mobile System
Resource Person	Dr.R.R.Itkarkar Professor, AISSMS COE, Pune.
Time	11:00 AM To 1:00 PM



Dr. R. R. Itkarkar Professor, AISSMS COE, Pune has discussed on “Mobile System”. In this session she gave insightful talk on Mobile Systems. Her presentation was both informative and engaging, and participants learned a lot from her expertise on the topic. Participants were gained with the knowledge of the on Introduction to Cellular Systems, GSM architecture, Protocols, Connection Establishment, Frequency Allocation, Routing, Mobility Management, Security, GPRS and UMTS: Architecture, Handover, Security. Introduction to 5G: Introduction, 5G network architecture, Applications, 5G enable technologies, Recent trends in Telecommunication Industries.

Date	30th March 2023 (Day Four)
Session	Two
Topic	Fading Channels
Resource Person	Dr. Gitimayee Sahu Sr.Manager, JIO Platforms Ltd, Mumbai
Time	2:00 PM To 5:00 PM

**JAYAWANT SHIKSHAN PRASARAK MANDAL's (JSPM's)**  
**BHIVARABAI SAWANT INSTITUTE OF TECHNOLOGY AND RESEARCH, WAGHOLI PUNE-412207 (BSIOTR)**  
 (Approved by AICTE New Delhi, DTE Mumbai, Govt. of Maharashtra and Affiliated to Savitribai Phule Pune University)  
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 is Organizing one Week FDP(Online) In Association with  
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 On  
**"Recent Trends In Mobile Computing With Real Time Approach"**  
 Date: 30 March 2023 Day: 4 Session: II  
 Timings: 2pm to 5pm  
**Resource Person for Session-II**  
 Dr. Gitimayee Sahu  
 Sr. Manager,  
 JIO Platforms Ltd,  
 Mumbai  
 Topic: Fading Channels  
 Dr. Prof. T.J.Sawant  
 Founder Secretary,  
 JSPM Pune  
 Hon. Shri. Rushiraj T. Sawant  
 Director, JSPM Group of  
 Institutes, Pune  
 Dr. Y.S. Angal (FDP Convener, HOD E&TC, BSIOTR), Contact: 7057150817

- Prem Kumar Patel
- Sushil Thakare
- aniket gunjal
- Dr. Gitimayee Sa...
- YOGESH
- mamta koban

Activate Windows  
Go to Settings to activate Windows.

**5G NR Vs LTE (Similarities & Difference)**

What is Similar to LTE?	What is Different from LTE?
<ul style="list-style-type: none"> <li>. OFDM &amp; OFDMA</li> <li>. DFT SC-OFDM for UL</li> <li>. Most Physical Channels</li> <li>. NR procedure-               <ul style="list-style-type: none"> <li>-System Acquisition</li> <li>-RACH</li> <li>-Power Control</li> <li>. Carrier Aggregation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>. NSA(Non-Standalone) Architecture &amp; EN-DN</li> <li>. CP-OFDM in UL</li> <li>. Flexible SCS(Subcarrier Spacing) &amp; Slot</li> <li>. Wider Channel BW &amp; New Freq Band(mmW spectrum)</li> <li>. Beam Management, Multibeam operation/Beam Sweeping</li> <li>. Physical Channel Changes-               <ul style="list-style-type: none"> <li>-New Channels- PTRS, TRS</li> <li>-Removal of PHICH &amp; PCFICH</li> <li>. UL sharing and supplementary uplink.</li> </ul> </li> </ul>

- Dr. Gitimayee Sa...

Activate Windows  
Go to Settings to activate Windows.

Dr. Gitimayee Sahu Sr.Manager, JIO Platforms Ltd, Mumbai has focused on “Fading Channels”. In this session participants were familiar with Rayleigh Fading and Statistical Characterization, Properties of Rayleigh Distribution, BER in Fading, Narrowband vs Wideband Channels, Characterization of Multipath Fading Channels, Choice of Modulation, Coherent versus Differential Detection, BER in Fading , Ricean Fading.

Date	31st March 2023 (Day Five)
Session	One
Topic	Computational Intelligence in Mobile Computing
Resource Person	Dr. Vandana M. Rohokale Prof & HOD(E&TC), SIT's, Narhe, Pune
Time	2:00 PM To 4:00 PM

**JAYAWANT SHIKSHAN PRASARAK MANDAL's (JSPM's)**  
**BHIVARABAI SAWANT INSTITUTE OF TECHNOLOGY AND RESEARCH, WAGHOLI PUNE-412207 (BSIOTR)**  
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 On  
**"Recent Trends In Mobile Computing With Real Time Approach"**  
 Date: 31 March 2023 Day: 5  
 Timings: 2pm to 4pm  
**Resource Person for Session**  
 Dr. Vandana Rohokale  
 Prof & HOD(E&TC),  
 SIT's, Narhe, Pune  
**Topic: Computational Intelligence in Mobile Computing**  
 Dr. Y.S. Angal (FDP Convener, HOD E&TC, BSIOTR), Contact: 7057150817

Participants: YOGESH ANGAL, Poonam Gawade, Manisha Rajput, sonali, Dr. Vandana Rohokale, JSPMs BSIOTR FDP.

**We Talked To Sophia - The AI Robot That Once Said It Would 'Destroy Humans'**  
 Sophia, it was nice meeting you. Goodbye.  
 TECH INSIDER

Zoom controls: Unmute, Start Video, Security, Participants (51), Chat, Share Screen, Pause/Stop Recording, Breakout Rooms, Raise Hand, Apps, More, Leave.

Dr. Vandana M. Rohokale Prof & HOD(E&TC), SIT's, Narhe, Pune has explained “Computational Intelligence in Mobile Computing”. In this session participants realized the significance of Recent Trends in Mobile Computing, CI vs AI, principles Computational Intelligence, AI & ML, Deep learning, Uses of Computational Intelligence, Deep Learning Approach for Interference Mitigation in MIMO-FBMC/OQAM Systems.

<b>Date</b>	<b>1st April 2023 (Day Six)</b>
<b>Session</b>	<b>One</b>
<b>Topic</b>	<b>Operating System &amp; Applications of Mobile Computing</b>
<b>Resource Person</b>	<b>Dr. Makarand M Jadhav Prof &amp; HOD(E&amp;TC), NBN STC, Pune</b>
<b>Time</b>	<b>9:00 AM To 11:00 AM</b>

Feature	Android	iOS	Windows 10	BlackBerry 10
Company	Google	Apple Inc.	Microsoft	BlackBerry Ltd.
License	Free and open-source	Proprietary except for open source components	Proprietary, Commercial Software	Proprietary
OS family	Linux	Darwin	Microsoft Windows	QNX
Supported CPU Architecture	ARM	64-bit ARMv8-A	32-bit ARMv7-A and 32-bit ARMv8-A	ARM
Programmed in	C, C++, Java, Kotlin	C, C++, Objective-C, Swift	.NET, C#	C/ C++
Current version				

**Design Issues in Mobile O.S**

- Power Management :** Here, **Device power management** and **Processor power management** need to be considered.
- Battery Management :** Mobile OS **collects the information about the state of the batteries of the device** and inform the user. In case of abnormal consumption or battery discharge due to some application/game, **O.S must perform an emergency shutdown keeping the data loss at minimum level.**
- Thermal Management :** As the mobile devices operate with the batteries, **Heat Dissipation is also a challenge.** It is one of the functions' of the Mobile OS to **manage and reduce the power consumption of the devices.**
- Memory Management :** Mobile OS **should consume less space in RAM.** The designing of **structure of Mobile O.S** also may help in reducing the memory size and reduce memory outflows. **Efficient memory management techniques need to be adopted while designing the mobile OS.**
- Scheduling :** The Mobile OS may adopt the pre-emptive scheduling mechanism. The interrupt latency **and** dispatch latency must be minimized in mobile OS.
- File System :** Flash file systems are used in mobile devices. They offer a fast-read access. The file system should adopt the memory management techniques that minimize the fragmentation problem, caching techniques and intelligent re-claim techniques.
- Security :** Mobile devices also may get infected with worms, Trojan horses or viruses wherein compromising the user's security and privacy. As all the mobile devices are prone to attacks any time, it is therefore the major function of the **Mobile OS** to provide security mechanisms to address all the security issues.

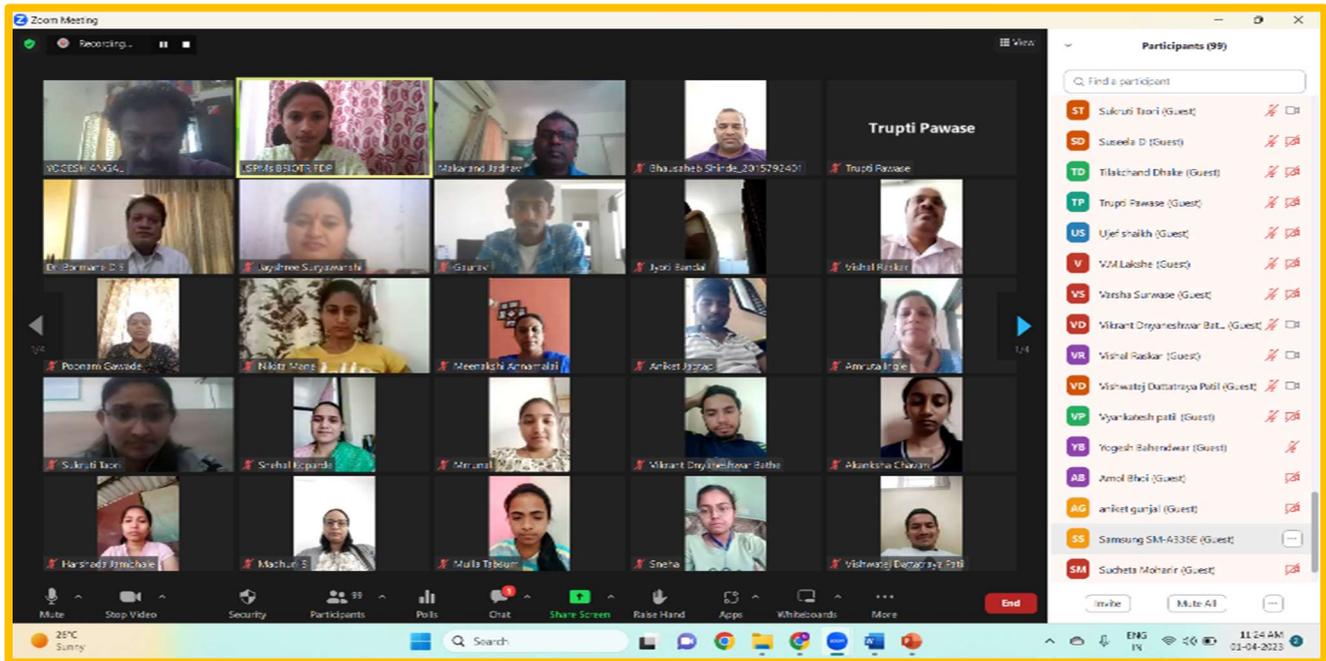
A discussion on “Operating System & Applications of Mobile Computing” was delivered by Dr. Makarand M Jadhav Prof & HOD(E&TC), NBN STC, Pune. In this session participants got the knowledge about Operating System: A Few Basic Concepts, Special Constraints and Requirements of Mobile OS, A Survey of Commercial Mobile Operating Systems, Windows Mobile, Applications: M-Commerce, Business to Consumer (B2C) Applications, Business to Business (B2B) Applications. Structure of M-Commerce, Pros and Cons of M-Commerce, Mobile Payment System, Mobile Payment Schemes, Desirable properties of a Mobile Payment system, Mobile Payment solutions, Process of Mobile Payment, Security Issues.

## Valedictory Session:

<b>Valedictory Session</b>	
<b>Date</b>	<b>1 April 2023</b>
<b>Time</b>	<b>11:00 AM</b>

The esteemed personalities present on the Valedictory of the Programme:

Dr. D. S. Bormane	Member, Governing Council, IETE, New Delhi	Chief Guest
Dr. M. M. Jadhav	Chair, IEEE Communication Society, Pune Chapter	Chief Guest
Dr. T.K. Nagaraj	Principal, BSIOTR	Host
Dr. Y. S. Angal	HOD(E&TC), BSIOTR	Host

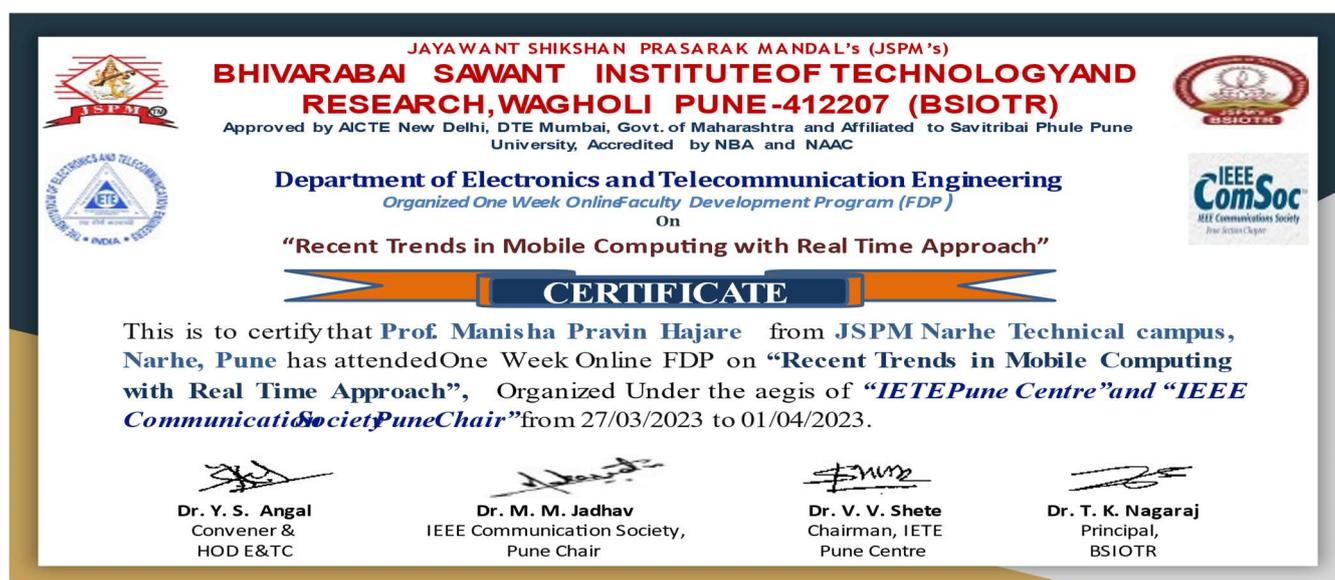


Valedictory Session of the FDP with Dr. D. S. Bormane Member, Governing Council, IETE, New Delhi and Dr. M. M. Jadhav Chair, IEEE Communication Society, Pune Chapter.



All the personalities appreciated the department for organizing the FDP. The program was ended with vote of thanks by Mrs. Suchipriya Malge, Asst. Prof., Electronics & Telecommunication Dept., JSPM'S BSIOTR & Coordinator of the FDP. The FDP received a lot of positive feedback from faculty members, PG students and research scholars from many universities of India. There were 104 enthusiastic participants in total, who took part in the 6-day online FDP. Each session was of Minimum 90 minutes & Maximum 180 minutes and included open questions, answer session. Zoom meeting was the platform used for each session links (Join Zoom Meeting <https://us02web.zoom.us/j/83443301126?pwd=c1V6eWdDUU9BcDVLmWVjZHI5YU5xUT09>); feedback links were shared, MCQ Test was conducted at the end of FDP. The registered participants were engaged in a special WhatsApp group. The recordings are being uploaded on the Google Drive. ([https://drive.google.com/drive/folders/1E0-QfZB-is5pjQ51jJKe4m85nnD7FebA?usp=share\\_link](https://drive.google.com/drive/folders/1E0-QfZB-is5pjQ51jJKe4m85nnD7FebA?usp=share_link)). 104 E-certificates were awarded to all registered participants by sharing Google Drive Link. The FDP was concluded on the tanks giving note to the Chief Guest, Management, Campus Director, Principal, Deans and all the Participants.

### Sample FDP Certificate:



### FDP Outcome:

All the sessions were very much informative. The discussed areas are of great benefit for the participants as the topics match with the current working domain. Participants were enlightened with the most widely used advance technologies in this domain. This in turn will help in research activity.

Sr. No.	FDP Outcome
1	Understand concepts of Mobile Communication.
2	Analyze next generation Mobile Communication System
3	Understand network layers of Mobile Communication
4	Understand IP and Transport layers of Mobile Communication
5	Study of different mathematical models
6	Understand different mobile applications.

<b>Sr. No.</b>	<b>FDP Outcome</b>	<b>PO</b>	<b>PSO</b>
<b>1</b>	Understand concepts of Mobile Communication.	PO1	PSO1
<b>2</b>	Analyze next generation Mobile Communication System	PO2	PSO2
<b>3</b>	Understand network layers of Mobile Communication	PO1	PSO1
<b>4</b>	Understand IP and Transport layers of Mobile Communication	PO1	PSO1
<b>5</b>	Study of different mathematical models	PO2, PO3, PO4, PO5	POS3
<b>6</b>	Understand different mobile applications.	PO11, PO12	PSO3

Programme Co-Ordinator	Asst. Prof. S. V. Malge (E&TC) BSIOTR	
	Asst. Prof. P. V. Gawade (E&TC) BSIOTR	
	Asst. Prof. J. Y. Suryawanshi (E&TC) BSIOTR	
Programme Convenor	Dr. Y. S. Angal, HOD (E&TC), BSIOTR	
Principal	Dr. T. K. Nagaraj, Principal, BSIOTR	