



# Government of Andhra Pradesh

## Department of School Education

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## **Background:**

Government of Andhra Pradesh manages and regulates over 60,000 Schools i.e., Government/Zilla Parishad/Municipal, Aided and Private for this government was desirous of developing comprehensive Management Information System (MIS) relating to infrastructure, syllabus, admissions/enrolment and teacher information by mapping U-District Information on School Education (U-DISE) data for regular monitoring and course correction to deliver various benefits. Therefore School Education Web Portal was designed and developed that provides access to information, services and a platform for monitoring Education Services to ensure quality education services in Andhra Pradesh State.

The project broadly covered the following:

- Designing and development of the software to suit the unique needs of School Management Information System (SIMS)
- Bringing all data and reports relating to Schools on a single platform
  - Student Information Repository
  - Teacher Information Repository
  - Biometric Attendance system
  - Asset Management System
  - School Management System
  - Geographic Information system (GIS)
  - Student Assessment System (CCE)
  - Mid Day Meal Monitoring
  - Online Monitoring system (KPI)
- Services
  - Online Teacher Transfers
  - Computer Based Tests
  - No Objection Certificate
  - Online Submission of Medical Reimbursement
- Integration of SMS Gateway
- Integration of Payment Gateway
- Forms and Applications
- IT Infrastructure services
  - Setting up of required IT Infrastructure
  - Maintenance of IT Infrastructure

Government of Andhra Pradesh has also taken a few initiatives to kick start the process of integrating technology in schools. It conducted a workshop with EdTech experts to frame the state's vision of integrating technology. Post the workshop, the state government has started to put together a Project Management Unit (PMU) which will lead the work on using technology. As next step, the School Education Department has identified three key areas in which technology can be leveraged and these are mentioned below.

- Technology for Student Learning (Blended Learning)
  - Digital Classrooms
  - ICT Labs
  - Virtual Classrooms
- Technology for Teacher Professional Development (APEKX)
  - Online Courses
  - Subject Teacher Forums
  - Content Repository
- Technology for Management (Data Systems)
  - Student Achievement Management System (SAMS),
  - Human Resource Management System (HRMS),
  - Teacher Training and Support System (TTSS),
  - Analysis of Assessment related data to aid in decision making, and
  - An integrated portal that features all education related data systems, namely,

### **Andhra Pradesh School Education Portal (APSEP)**

#### **1. Technology for Student Learning (Blended Learning)**

Technology-integrated teaching models can help improve student engagement and learning outcomes. Teachers in the classroom can use technology for the purpose of teaching, revising or practicing concepts with students. There are three broad pedagogical models which the Department of School Education is keen to implement in the classrooms. These are:

**a. Digital classroom:** Digital classroom comprises of a projector and a computer. Teachers will use this setup to teach the entire class using curriculum-linked digital content such as conceptual videos, animations or practice problems. Digital content helps in building deeper conceptual understanding and increased student engagement.

**b. ICT Lab:** An ICT lab comprises of 20 to 30 functional tablets with or without projector facility. ICT labs will be used to give students one-on-one time with the devices and practice at their own pace. Adaptive platform based content such as Khan Academy can be used in these labs, where students attempt to solve problems either individually or in small groups depending upon the device-student ratio.

**c. Virtual Classrooms:** Government of India has signed MOU with ERNET India for setting up of 280 virtual learning centers in schools and studios in 4 DIETS of Andhra Pradesh to empower the students with ICT skills. The digital content will be provided for Science, Mathematics and English in Telugu and English languages.

The Department of School Education is evaluating various sources of content which would be used in the classrooms. The long term vision is to build the capacity of teachers to build their own digital content for classrooms. Department of School Education started conducting trainings for teachers regarding use of digital content in classrooms as well as creation of digital content. 1,630 Digital Classrooms are set up across the state. Department of School Education is now looking to establishing ICT Labs at these schools and create blended learning model.

## **2. Technology for Teacher Professional Development (APEKX)**

The Department of School Education aims to provide teachers with access to high quality teaching and learning resources all through the year, while also providing enough agency to teachers to find the right material to address their specific needs. It also aims to provide all the teachers a common platform to understand the collective needs of teachers, while fostering a culture of collaboration and independent and self-paced learning.

The Department of School Education, in alignment of its vision articulated above, created a web based platform for providing diverse professional development opportunities to all the teachers of Andhra Pradesh and is planning to create mobile application. The following are the major components of the platform.

**a. Online courses:** The courses will aim at improving subject specific knowledge as well as pedagogical knowledge of the teachers. The Department of School Education plans to partner with expert organizations and individuals who are currently running online courses for various subjects and overall pedagogy.

**b. Subject Teacher Forums:** Inspired by the success of AP Math Forum, the website also included forums for all the subjects, where teachers can collaborate by sharing resources with other teachers, students and experts. Teachers can also share challenges they face and potential solutions while using technology in classrooms.

**c. Content Repository:** The website is also acting as a repository of curriculum aligned resources which can be used by teachers and students as well. The teachers will also be encouraged and trained to create their own content and share with others through this repository. It will also provide online lab material in collaboration with other virtual labs like <http://www.olabs.edu.in/>.

The Department of School Education in collaboration with the SCERT, is conduct trainings for teachers. The trainings are focusing on helping the teachers understand the concept of an online platform and using it. The platform has in-built analytics to gauge the usage among teachers. The Department of School Education is also collating feedback through various channels including forums or in person visits. Its named Andhra Pradesh E-knowledge eXchange Portal (APEKX)

## **3. Technology for Management (Data Systems)**

Government of Andhra Pradesh has now embarked on an ambitious goal to revamp and strengthen the Data Systems. The Government has introduced multiple state wide initiatives such as Aadhar enabled Child Tracking System; Andhra Pradesh E-Knowledge Exchange

(APEKX); Information System to create a common database for both teacher and non-teaching staff; collection, analysis and reporting of assessment data (CCE, 3R's), bio-metric attendance tracking, and many more. The Government plans on creating integrated data systems that are directed towards empowering teachers and improving student learning outcomes. Specifically, the Government will undertake the design and development of

- Student Achievement Management System (SAMS),
- Human Resource Management System (HRMS),
- Teacher Training and Support System (TTSS),
- Analysis of Assessment related data to aid in decision making, and
- An integrated portal that features all education related data systems, namely, **Andhra Pradesh School Education Portal (APSEP)**.

#### **Way Forward:**

- Development of frameworks for the identified integrated data systems, namely
  - ***Student Achievement Management System (SAMS), the framework of which will contain***
    - ***Key components*** such as Continuous Comprehensive Evaluation (CCE), State Level Achievement Survey (SLAS), Board Results, Census based National Achievement Survey (CNAS) and other state specific assessments.
    - ***Key features*** include single window system, common database, monitoring student progression and performance, monitoring low-performing students, generating periodic reports for each stakeholder, and more.
  - ***Human Resource Management System (HRMS), the framework of which will contain***
    - ***Key components*** such as all teacher life-cycle related activities including Recruitment, Deployment, Teacher Database, Training, Performance Appraisal, Transfers, Promotions and Subject Teacher Forums.
    - ***Key features*** include single window system, single User ID (Treasury ID), common database, automated generation of records for all activities across teacher life cycle, periodic reports for teachers, teacher evaluators and administrators, and more.
  - ***Teacher Training and Support System (TTSS), the framework of which will contain***
    - ***Key components*** such as all list of trainings conducted by organizations such as SSA, RMSA and SCERT, online assignment of teachers to the trainings, attendance monitoring for training sessions, online disbursement of TA/DA, teacher evaluation support by digitization of PINDICS.
- Design and Development of online web-based portals based on the above frameworks for the identified data systems to cater to the needs of key stakeholders such as students, teachers, parents, district and state administrators.
- Analysis of all assessment related data by,


- Setting Benchmarks and Ranking of Districts, Mandals, Villages, Schools based on overall performance. This includes,
  - Overall ranking as measured by Overall Assessment Score (average of all subjects across all grades).
  - Mean and median to understand the distribution.
  - Identify High and Low performing schools based on overall assessment score.
  - Analysis by individual subject (average across all grades in each subject) and grade (average across all subjects in each grade).
  - Analysis by Social Category (SC, ST, OBC, General) and Gender.
  - Analysis by School Management and Area (Rural vs. Urban).
- Analysing correlations between variables.
  - Co-relate training level of teachers in a District/Mandal (from U-DISE data) and Overall Assessment Scores.
  - Co-relate FA1 and FA2, compare districts that underwent steep increase in Overall Assessment Scores
  - Co-relate Pupil Teacher Ratio and Overall Assessment Scores.
  - Co-relate Teacher Vacancy (sanctioned minus allocated) and Overall Assessment Scores.
- Providing targeted remediation for students to close achievement gap. This includes,
  - Identifying individual and cumulative low-performing students (children with D2 grade) by subject.
  - Identifying bottom two subjects/academic standards for the State/District/Mandal.
- Design and development of Andhra Pradesh State Education Portal (APSEP), that envisions the convergence of all the data systems and will act as the single window for all data collection and dissemination efforts.

### Progress:

- **Teacher Training and Support System (TTSS):**
  - Preliminary framework for streamlining teacher training needs was created in consultation with various stakeholders in the Government that include, SSA, RMSA, SCERT and SIEMAT.
  - Initial prototypes of the data systems have been created to initiate the development of this work.
- **Analysis of Assessment related data to aid in decision making:**
  - Development of Phase 1 analysis of assessment related data is underway. Few screenshots from the portal are presented below.

## Annexure

### School Education Web Portal:



**COMMISSIONERATE OF SCHOOL EDUCATION**  
GOVERNMENT OF ANDHRA PRADESH

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R3.1 STUDENT INFORMATION

Student Information Report
Combo Graph
Line Graph

District Name : ALL
Mandal Name : ALL
School Name : ALL

Show 25 entries
Search:

| Sl.No        | District      | Total Number of Students |                      |                  |                  |
|--------------|---------------|--------------------------|----------------------|------------------|------------------|
|              |               | Primary School           | Upper Primary School | High School      | Total            |
| 1            | ANANTAPUR     | 2,96,378                 | 1,71,192             | 1,03,555         | 5,71,125         |
| 2            | CHITTOOR      | 2,82,380                 | 1,74,156             | 1,10,022         | 5,66,558         |
| 3            | EAST GODAVARI | 3,64,609                 | 2,25,146             | 1,38,693         | 7,28,448         |
| 4            | GUNTUR        | 3,30,258                 | 1,97,105             | 1,23,109         | 6,50,472         |
| 5            | KADAPA        | 2,17,290                 | 1,24,045             | 75,503           | 4,16,838         |
| 6            | KRISHNA       | 2,85,563                 | 1,78,200             | 1,17,128         | 5,80,891         |
| 7            | KURNOOL       | 3,48,850                 | 1,86,795             | 1,09,715         | 6,45,360         |
| 8            | NELLORE       | 2,03,608                 | 1,19,336             | 71,621           | 3,94,565         |
| 9            | PRAKASAM      | 2,45,325                 | 1,39,764             | 82,205           | 4,67,294         |
| 10           | SRIKAKULAM    | 1,81,423                 | 1,19,517             | 77,301           | 3,78,241         |
| 11           | VISAKHAPATNAM | 3,12,045                 | 1,88,903             | 1,23,390         | 6,24,338         |
| 12           | VIZIANAGARAM  | 1,51,733                 | 97,559               | 61,893           | 3,11,185         |
| 13           | WEST GODAVARI | 2,60,313                 | 1,64,395             | 1,03,874         | 5,28,582         |
| <b>Total</b> |               | <b>34,79,775</b>         | <b>20,86,113</b>     | <b>12,98,009</b> | <b>68,63,897</b> |

Showing 1 to 13 of 13 entries
◀ Previous Next ▶

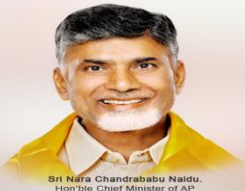
Note:\* As per Child info 2015-16 data provide by DSE-AP

- The School Education Web Portal Provides detailed and Comprehensive reports for various verticals such as Students, Teachers, Schools.

### Andhra Pradesh E-Knowledge Exchange Portal:

AkashVidya.in  
I am What I Learn
Home About Us Teacher Upload Login

Reducing Digital divide will reduce poverty and inequality



Sri Nara Chandrababu Naidu,  
Hon'ble Chief Minister of AP

Content Repository

Search
Free Learning Resources

SSC

CURRICULUM

ANALYTICS

TEACHER & STUDENT

SCERT

E-TEXTBOOKS

AP MATH

FORUMS

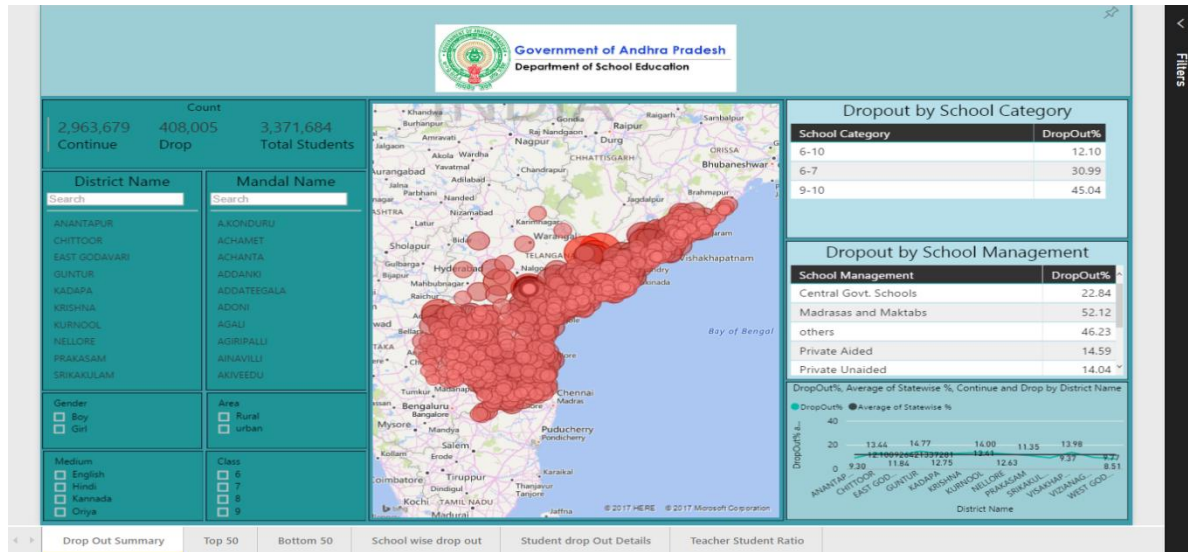
SIET

AUDIO-VIDEO LIBRARY

- APEKX portal provides free cloud based digital content such as Animations, Presentations, Class Notes & Mind Map to teachers. These facility should be extended so that every students.

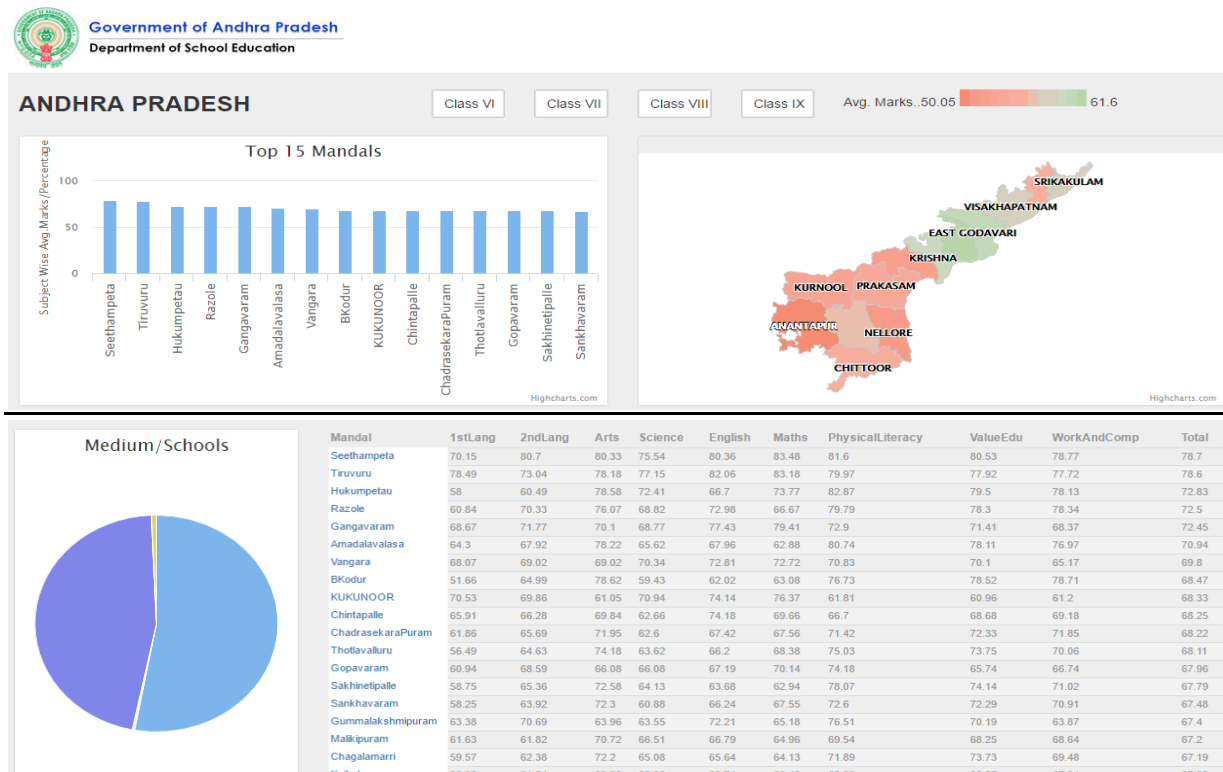


# Students Drop Out Analysis:



- Microsoft Machine Learning Student Drop Out analysis enriches the flaws of students discontinuing from studies and helps us to overcome those challenges.

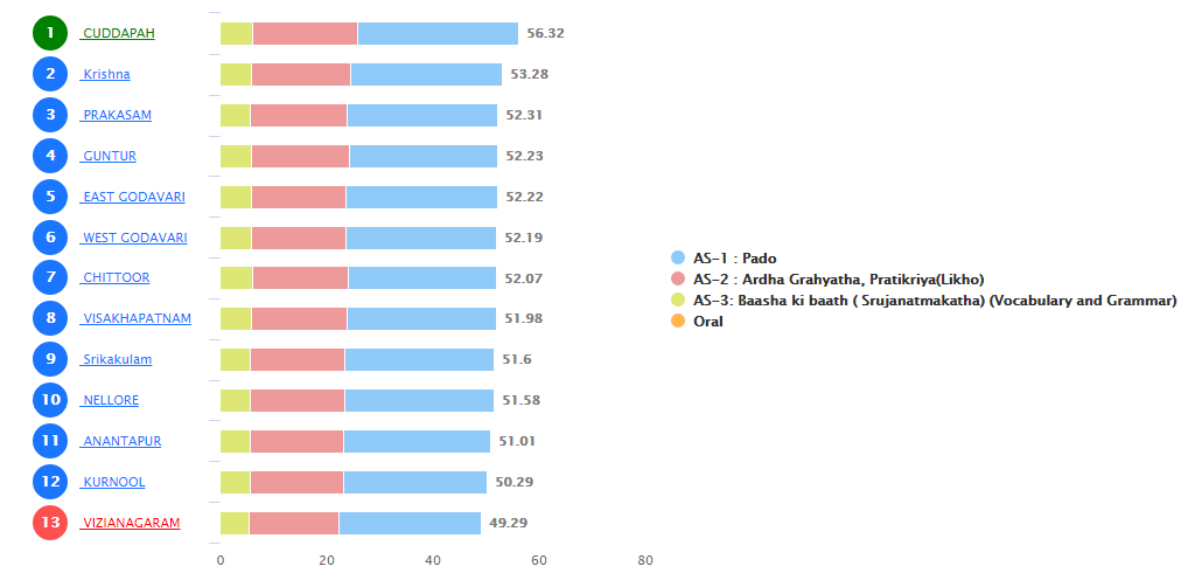
# CCE Analytics Dashboard:



- State Wise District Performance Analysis



### Top Districts based on Academic Standards



- District wise ranking based on academic standards



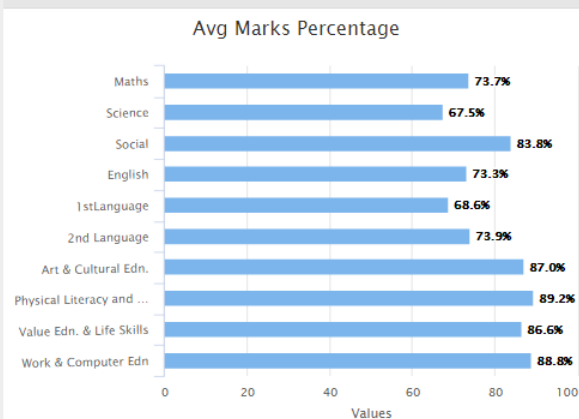
Government of Andhra Pradesh  
Department of School Education

Home / Ananthagiri / ANANTHAGIRI /

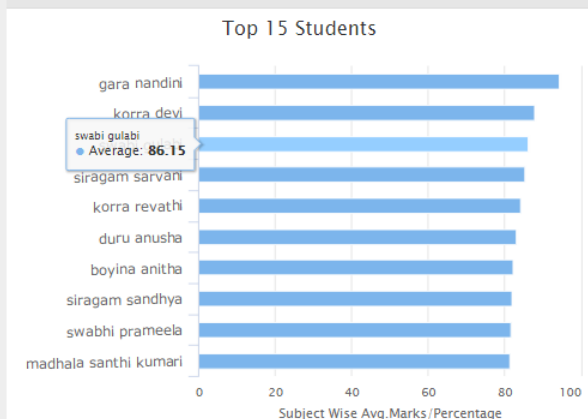
### GOVT TW Ashram School(G), ANANTHAGIRI-2

Medium: Telugu, Total Students: 33

#### Subject Wise Analysis



#### Top 10 Students



- School analysis dashboard

## Integrated Data Systems:

**Government of Andhra Pradesh**  
Department of School Education

Sri N Chandrababu Naidu  
Hon'ble Chief Minister  
Government of Andhra Pradesh

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### AP School Education Portal

- Assessment System
- Human Resource Management System
- School Management System
- Education Department
- Citizen Corner

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- AP School Education Portal will be the one stop single window education related portal for Govt. of AP.

**TEACHER TRAINING AND SUPPORT SYSTEM**  
Department of School Education

Home Teachers School Leaders Administrative Staff Community Teacher Educators Logoff

### Nominating Teachers for Training

|                                |                                      |  |  |
|--------------------------------|--------------------------------------|--|--|
| District Name<br>Krishna       | Mandal Name<br>Nandigama             | Type of Training<br>SCERT training through DIETS | Name of the Training<br>Language Training for Grade 1,2,3,4 for 2 days |
| Duration of the Training<br>30 | Start Date<br>10/02/2017             | End Date<br>10/03/2017                           | Place of Training<br>Nandigama   |
| Reporting Time<br>10.30        | DRP for this Training<br>Radha - 001 |  |  |

### Select Teachers for the Training

| S.NO                     | Name of the Teacher | Treasury id | Gender | Category of post | Class Taught |
|--------------------------|---------------------|-------------|--------|------------------|--------------|
| <input type="checkbox"/> | 001                 | Radha       | Female | SA Mathematics   | 8            |
| <input type="checkbox"/> | 002                 | Krishna     | Male   | SA Social        | 9            |
| <input type="checkbox"/> | 003                 | Ramu        | Male   | SA Science       | 7            |

Submit

- Teacher Training Management System Integration with Teacher Information System database will cover both the training needs of Teacher's as well as non-teaching staff.

## Mobile Applications:

