Tele-density in India is currently found to be poor (2.6 per hundred) when compared with China or the West. But it is growing in a geometric proportion. Due to this growth, e-learning market is rapidly exploding. There is a heavy demand for Computer Application e-content developments. According to Said Hadjerrrouit (2006), the teaching paradigm of e-learning must be shifted from traditional methods. Care should be emphasized while designing Web Based Instructions. Technical/operational aspects of learning objects and their reusability is becoming a challenge - Natasha Boskic (2003). Merrill’s (2002) ‘First Principles of Instruction’ has been proven to be successful when adapted for instructional designs, particularly for problem centric subject contents, such as ‘Computer Graphics’.

This research work in view of the above, is attempting an e-learning model that would use reusable objects that are of independent entities. This model would thus attempt to use Merrill’s portrayals. One of the research objectives is therefore, to propose an effective model for developing e-content on ‘Computer Graphics’. Both experimental as well as social study research methodologies have been recommended. This research work is question’s based and not hypotheses based.
The research work limits its scope of study to the subject content of ‘Computer Graphics’ that is selected based on interview schedules. A preliminary investigation has resulted into certain issues that are pertaining to e-tutoring of ‘Computer Graphics’. 11 parts of NPTEL modules of Computer Graphics have been taken for the study for comparative study on instructional effectiveness of e-learning. Content analysis has been performed on selected e-contents of ‘Computer Graphics’. The results clearly show that ‘information’ need not be ‘instructive’. Besides, the content analytical results that are documented would be of immense value for further research.

While the content analytical results have suggested for modular approach through using reclaiming model of Merrill (2002); the one that adapted unidirectional instructional model for NPTEL would be analyzed. Strategic instructional components for e-content development have been determined using social survey. 18 strategic components have been derived out in the research. These components include issues like: ‘time-duration of e-content modules; need for animated graphics; need for independent reusable modules for e-content etc.

Based on the content analytical work and the e-content developmental instructional strategies, an instructional model has been proposed. The basic e-content development has adapted standards like SCORM initially. Merrill’s ‘First Principles of Instructions’ (FPI) has been
applied to the algorithm and test runs have been carried out for experiments. The model bases the following layers:

- Objects layer; Modules meta-file containing essential procedures;
- sections layer and the main procedures. Sharable Content Object (SCO’s) ‘Black Box’ has been tried out successfully.

The proposed e-content development model has been experimented with 124 respondents (learners). This social survey was administered for validating the proposed model through experiment.

Important and major conclusion such as the need for small, independent reusable modular (objects) approach is validated. Finally other conclusions on content analysis, strategic instructional survey and on the proposed model – its features etc., have been drawn out of this research. Over 60 directly referenced literature works have been cited. Three research papers have been published from this research study.