Rationalization of School Curriculum

Background

The conventional teacher centred and rote learning form of education has served us well through ages. As the education system in Bhutan embraces the 21st Century education framework and principles, it warrants a paradigm shift in curriculum design and development, including the pedagogy, commensurate the competency based learning. An approach, which underscores that learning in the 21st century, is for the development of competencies through active engagement of learners in learning experiences, guided by formation and utilisation of "working knowledge". This empowers learners to take responsibilities of their learning and develop "portable skills or soft skills," such as critical thinking, creativity, communication and collaboration, vital for all as individuals with unique talent and competencies. The current culture of curriculum design and practices in schools, however, do not render condition to facilitate realisation of the national aspiration of nurturing "nationally rooted and globally competent" citizen.

Amongst others, it has always been a concern for REC on the extent, relevancy and quality of the curriculum in all subjects. Thus, in order to facilitate quality learning for 21st Century education, REC has initiated major curriculum reform in all subjects.

Rationale

The Bhutan Education Blueprint 2014-2024 indicated that the existing curriculum was 'heavy'. This was echoed as one of the major pointers in the National School Curriculum Conference 2016 that the curriculum was 'vast'. These findings led to the need for curriculum "thinning" [Resolution 3.1.10 (IV)]. In response to these findings, REC started the rationalization of the existing curriculum by reviewing and screening out the obsolete and irrelevant content, and updating them with the most recent information and also rectifying errors in the textbooks. Therefore, some portions of the syllabi from several subjects, for instance, have been dropped. The rationalization or thinning of curriculum is one of the important considerations made while developing new textbooks based on new curriculum frameworks.

The curriculum rationalization process also aligns very well with Resolution 13 of the National Education Conference 2018 of "Doing away with the Saturday classes". The para 13.4 of the resolution requires 'REC to work on curriculum thinning and review of time allocation for each subject'. This resolution has further facilitated REC to expedite the curriculum rationalization and review the time and period allocation for each subject.

Rationalization of the school curricula is based on the following strategies:

i. Review the goals and outcomes of each subject to identify topics, chapters, learning activities, exercises and assessment.
ii. Develop rationalized syllabus for each subjects ensuring conceptual linkages and progression within the chapter or topic in the textbooks.
iii. Minimize lexical density in text by reducing heavy textual materials from the textbooks.
iv. Remove topics, learning activities or assessment items, which are redundant, overlapping irrelevant or inappropriate.
v. Delete irrelevant or inappropriate illustrations or diagrams, and examples from the text.

vi. Update and align the content width and depth with the teaching time available for each subject.
vii. The revised syllabi for each subject are categorised and compiled under four subject classifications, namely STEM, Social Sciences, Language, and TVET & Commercial Studies.

The review of the instructional time allocation is based on the following criteria:

i. Maintain the instructional time requirement at the international standard.
ii. Maintain gradual increase of instructional time across most of the key stages.
iii. Reduce the instructional time for each subject across the grades based on the doing away of the Saturday classes.
iv. Allocate time for personal development learning areas, such as HPE, Arts Education, Values Education, CGC, TVET Program (clubs and PVOP).
v. Non-curricular activities and programmes are to be conducted outside the instructional hours.
vi. Calculate 150 actual curricular instructional days (excluding examination days in June and November months) in an academic year based on 5 working days per week.
vii. Calculation of instructional time is based on 8 periods a day of 40 minutes each.

Conclusion

Instructional time refers to the actual contact time in the classroom. This is the minimum time available for the delivery of the curriculum including assessment. Instructional Time equals to number of days multiplied by number of periods per day times duration of one period (180 x 8 x 40). The rationalization of the curriculum is based on 150 days of the actual instructional time.

Instructional days are the total number of days within which the curricular activities are conducted. Within these days, a maximum of 5.33 hours (320 minutes) are available for actual classroom instruction per day. This calculation is based on 8 periods a day of 40 minutes each. The average instructional time in the OECD countries ranges from 799 to 915 hours per year. This includes all the educational activities that happen in the school in a day. However, the calculation of instructional time for the rationalized curriculum is based on the actual contact time for curriculum delivery, which has resulted in more instructional time than in OECD countries.

Lastly, it must be noted that the instructional time and days are suggested guide. Thus, it is envisaged that schools will make adjustment in instructional time as deemed applicable.

Subject: Physics **Class: IX**

Chapter	Time (min)	Weighting	Changes	Reasons
Chapter zero	90		Status quo	
Chapter 1	574	16%	Status quo	
Chapter 2	532	15%	Status quo	
Chapter 3	785	21%	Status quo	
Chapter 4	574	16%	Status quo	
Chapter 5	405	12%	Status quo	
Chapter 6	405	12%	Status quo	
Chapter 7	235	8%	Status quo	
Total	**3600**	**100%**	Status quo	

Subject: Physics **Class: X**

Chapter	Time (min)	Weighting	Changes	Reasons
Chapter 1	485	14%	Status quo	
Chapter 2	312	10%	Status quo	
Chapter 3	830	22%	Status quo	
Chapter 4	830	22%	Status quo	
Chapter 5	485	14%	Status quo	
Chapter 6	658	18%	Status quo	
Total	**3600**	**100%**	Status quo	

Subject: Physics **Class XI**

Class XI Physics				
Chapter	**Time (min)**	**Weighting**	**Changes**	**Reasons**
Chapter Zero	300		Status quo	
Chapter 1	544	8%	Status quo	
Chapter 2	671	10%	Real life application(Pg.123): **Removed**	Covered in class X
Chapter 3	798	12%	Balanced and Unbalanced force (Pg.139-141):- **Removed**	Covered in class X
Chapter 4	544	8%	Status quo	

Chapter 5	418	6%	Status quo	
Chapter 6	418	6%	Status quo	
Chapter 7	418	6%	Status quo	
Chapter 8	418	6%	Status quo	
Chapter 9	418	6%	Status quo	
Chapter 10	418	6%	Status quo	
Chapter 11	544	8%	Status quo	
Chapter 12	418	6%	Status quo	
Chapter 13	291	4%	Status quo	
Chapter 14	291	4%	Status quo	
Chapter 15	291	4%	Derivation of Newtonian law of gravitation(Pg.504-505): **Removed**	Covered in chapter 7
Total	**7200**	**100%**		

Subject Class: Physics **Class XI**

Class XII Physics				
Chapter	**Time (min)**	**Weighting**	**Changes**	**Reasons**
Chapter 1	470	7%	Dynamic Lift (Pg.21-24):-**Removed**	Too detailed and irrelevant. No connection
Chapter 2	1093	15%	Learning Objective: Angular Simple Harmonic Oscillator in the learning objectives (Pg.41):- **Removed**	No content in the chapter
Chapter 3	364	5%	Ideal gas law in terms of Boltzmann's factor (Pg. 96-98): **Removed**	Vague and difficult concept. Not relevant and has no relation
Chapter 4	364	5%	Status quo	
Chapter 5	437	6%	Status quo	

Chapter 6	583	8%	Induction Motor(Pg.184-187):-**Removed**	High standard and has no relation
Chapter 7	1000	14%	Systematic and Random error(Pg.214):-**Removed**	Covered in class XI
Chapter 8	728	10%	Status quo	
Chapter 9	510	7%	Status quo	
Chapter 10	412	6%	Hydrogen Spectra (Pg.324):-**Removed**	Covered in class XI, chapter 12
Chapter 11	510	7%	Status quo	
Chapter 12	437	6%	Status quo	
Chapter 13	291	4%	Status quo	
Total	**7200**	**100%**		