Sustainable Development Goals:

Technical Education

TECHNICAL EDUCATION:

Seven Year (2016-23) Development Agenda and Three Year (2016-29) Action Plan in
T e c h n i c a l Education

Seven Year Development Agenda (2016-23)

INTRODUCTION: There has been significant growth in Technical Education in Assam in the last few years. Today, the number of Government Engineering Colleges is poised to increase from 2 to 10. Likewise, Government Polytechnics are increasing from 10 to 31. Establishment of a Women University, Establishment of Science and Technology University, Skill development initiative by community colleges, expansion of Engineering Education through Pvt. sectors and constituent colleges of Universities, undertaking Collaborative Research Projects with University of Melbourne, and Curtin University are some of the recent initiatives of Government under Technical Education.

A.   Baselines and Targets of Technical Education

1.   Specific Target for the period:

Table 1. Govt. Engineering College indicators: baselines and targets

Indicators	Baseline (2016-17)	Target (2019-20)	Target (2023-24)
No of Govt. Engg. Colleges	04	10	10
Intake	1095	2175	2175

Table 2. Govt. Polytechnic indicators: baselines and targets

Indicators	Baseline (2016-17)	Target (2019-20)	Target (2023-24)

No of Polytechnics	10	31	31
Intake	1545	5325	5325

Table 3. Community College indicators: baselines and targets

Indicators	Baseline (2016-17)	Target (2019-20)	Target (2023-24)	Target (2030-31)
No of Community College	06	31	35	35
Intake	1100	6200	7000	7000

2. **Comparison of growth rate**

(a) **Historical Improvement of Indicators with reference to last 10 year**

Indicator	Till year 2006	Till the year 2016
Number of Govt. Engineering College	02	04
Intake in Govt. Engineering College	510	1095
Polytechnic	09	10
Intake in Govt. Polytechnic	1270	1545
No. of Community College	0	06
Intake in Community College	0	1100

(b) **Expected achievement by 2030**

i. Number of State Engineering College will increase from 4 to 10. Annual Intake capacity in Govt. Engineering College will increase from 975 to 2400 thereby improving the access to technical Education.

ii. Govt. Engineering Colleges established five to six decades back, will be at par of today's

needs and standard.

iii. Number of State Polytechnics will increase from 10 to 31. Annual Intake capacity in Govt. Polytechnics will increase from 1545 to 5325 thereby improving the access to technical/Vocational Education.

iv. Polytechnics established five to six decades back, will be at par of today's needs and standard.

v. A university exclusively for Women wherein skill-based, competency based modular vocational courses will be imparted; promoting gender equity, livelihoods and sustainable development.

vi. Improved Institutional Mechanism for undertaking required reforms in the Technical Education system and for reorientation of Technical Education to promote sustainable development of the state and the nation.

vii. Providing National Level Institute in the State with collaboration of Industries, improving the access of ICT promoting sustainable development.

viii. Making our technical Education globally relevant and also for global recognition of our technical education in an era of globalization.

ix. Resulting quality skilled and technical manpower to promote sustainable development.

x. Resulting sustainable solution of the numerous socio-technical problems.

xi. Enhancing interaction with Industry.

xii. Creating skill-based, competency-based, job-oriented courses to dropouts; providing livelihoods, peace and sustainable development.

xiii. Revamping of existing Scholarships for Higher Education Stream, the quantum of Scholarship provided to be increased to make the scholarship attractive.

xiv. Scheme of Education Loan to be popularized.

xv. Formation of Board to enhance effective employability by engaging NSDC etc. Entrepreneurship development cell in Colleges.

B. List of Major issues in Technical Education of Assam

a. *Expanding access to services*

i. Increasing the number of State Engineering Colleges under Government sector

ii. Augmentation and modernization of existing State Engineering Colleges

iii.   Increasing the number of State Polytechnics under Government sector

iv.   Augmentation and modernization of existing ten polytechnics

v.   Establishment of more number Community Colleges in existing and new Polytechnics

vi.   Convergence of vocational education to Technical Institutions

vii.   Introducing Diploma to Certificate courses in diverse fields in Engineering to Service Sectors such as tourism, accountancy etc

viii.   Enhancement of residential facilities for students and staff

ix.   Creation of additional facilities like hostels for women, SC/STs and persons with disabilities.

b. Improving efficiency and quality of public service delivery

i.   Setting up of Industry Institute Partnership Cell (IIPC) for encouraging co-operation between industries and technical institutions, undertaking joint projects relating some specific problems affecting our society, organizing Industrial visits and training of students and faculty.

ii.   Development of Workshops and Laboratories of technical institutions

iii.   Development of Workshops of Polytechnics-Engineering Colleges as a common workshop for a group of Institutions and as Central Facilities.

iv.   Faculty Development and performance evaluation of faculties by students

v.   Setting up of Training & Placement Cell at institute level

vi.   Setting up of R & D and Consultancy service Cell

vii.   Setting up of Entrepreneurship Development Cell to promote Entrepreneurship and self-employment amongst technical students .

c. Expanding participation

i.   Enhancement of number of Admission Test Centers for technical courses covering more districts as per needs and convenience

ii.   Up-gradation of existing procedure for admission into technical and skill development courses

iii.   Easier access to information regarding technical programs and admission

iv.　Enhancement of measures like Scholarship on Merit-cum Means basis and also , Remedial Coaching .

d. *Fostering technological innovation*

i.　Inclusion of changing technological needs in technical education & training by removing obsolescence of curricula and course contents.

ii.　Collaborative Research Project with front ranking Educational Institution like University of Melbourne, Australia

iii.　Use of ICT in Higher Education through NPTEL/ NMEICT .

xvi.　Opening programs and courses in new and emerging areas - Courses like Bamboo Technology /Tea Technology/Drilling Technology /Food and Fruit Processing Technology/Cold Storage Technology to be introduced.

iv.　Establishment of Faculty and Staff Development Cell at institute level

v.　Establishment of Curriculum Development Cell at the Directorate .

e. *Policy and institutional changes to facilitate service delivery.*

i.　Development of continuous monitoring mechanism of technical institutions

ii.　Formulation of mechanism for ensuring the fulfillment of norms for recruitment and offering of salaries as per AICTE guidelines by the private /self-financed institutions.

iii.　Enhancement of budgetary support to technical institutions for providing service

iv.　Modification of state policies for training and retraining of faculty and staff

v.　Policy on academic autonomy to the institutions.

vi.　A collaborative approach (PPP mode), facilitating both government and public players as partners for the purpose of spread of education and ensuring accessibility for the beneficiaries through effective planning, which is a feasible approach to lend dynamism to higher education segment through infusion of financial inputs, transfer of knowledge (especially in emerging areas), enhancing opportunities for the academic aspirants in the region in matters of pursuing higher education as well as for build-up of competitiveness amongst the service providers.

f. *Organizational reforms.*

i. Undertaking quality assurance through Accreditation by NBA and Internal Quality Assurance Cell at institute level

ii. Institutional Reforms and Institutional management capacity enhancement

iii. Curricular Reforms to promote sustainable Development

C. Planning for resource requirements

i. (a)Financial resources for institutions/organization

Type of Institutions/ organization	Strategy	Number of institution	Source of funding	Implementing Department
Existing Engineering College	Augmentation and modernization of existing State Engineering Colleges	04	State Plan	Technical Education
Existing Engg College	Faculty and Staff Development	04	State Plan	Technical Education
New Engineering College	Increase of number of State Engineering Colleges under Government sector.	03	State Plan	Technical Education
New Engineering College	Increase of number of State Engineering Colleges under Government sector	03	RUSA	Technical Education
Existing Polytechnic	Augmentation and modernization of existing Polytechnics	10	CSS & State Plan	Technical Education
Existing Polytechnic	Faculty and Staff Development	10	State Plan	Technical Education
New Polytechnic	Increase in the number of State Polytechnics under Government sector	21	CSS & State Plan	Technical Education

University	Establishment & strengthening of a Woman University at Jorhat	01	State Plan	Technical Education
University	Establishment & strengthening of Assam Science & Technology University at Guwahati	01	State Plan	Technical Education
University	Collaborative Research Project with front ranking Educational Institution in India and abroad	01	State Plan	Technical Education
National level institution	Establishment & strengthening of an Indian Institute of Information Technology (IIIT) at Guwahati IIT	01	[PPP mode] Central & State Govt & Industry Partner	Technical Education
Community College	Convergence of vocational education to Technical Institutions by providing Diploma to Certificate courses in diverse fields in Engineering to Service Sectors such as tourism, accountancy etc	31	CSS & State Plan	Technical Education
Directorate of Technical Education	Establishment of Curriculum Development Cell at the Directorate	01	State Plan	Technical Education

(b)Financial projection of fund requirements by Government sector for Technical Education

Budget	Financial Year	Rs. In Lakh	Remarks
Existing Budget	2016-17	40183.38	Salary & Development
Tentative Requirement	2016-17	45183.38	Salary & Development
Existing Gap in Budget r	2016-17	5000.00	Tentative shortfall in Annual Budget

Projected Budget	2016-19	89400.00	Salary & Development
Projected Budget	2019-22	150000.00	Salary & Development
Projected Budget	2022-25	210000.00	Salary & Development
Projected Budget	2025-28	3000000.00	Salary & Development
Projected Budget	2028-30	4200000.00	Salary & Development

I. **Human Resources**
   (A) Scenario of employees under Technical Education in 2016

Type of Institution	No. of Institution	Faculty	Other staff	Total	Faculty to Students Ratio required as AICTE
Engineering Colleges	04	352	546	898	1:15
Polytechnic	10	381	856	1237	1:20

(B)Projected scenario of employees under Technical Education in 2019

Type of Institution	No. of Institution	Faculty	Other staff	Total	Faculty to Students Ratio required as AICTE
Engineering Colleges	14	634	1038	1672	1:15
Polytechnic	31	969	2410	3379	1:20

II. **Infrastructure Requirements**
   (A) Existing technical institutions (2016-2019)

Sl. No.	Category of Institution	Infrastructure	Likely Number
01.	Existing Engineering College (04 Number)	Up-gradation of Laboratories	20
		Modernization of Workshop	04
		Modernization of Library	04
		Development of Video Conference Room	04
		Up-gradation of Centralized Computing Center	04
		Setting up of Industry Institute Partnership Cell (IIPC)	04
		Setting up of Training & Placement Cell	04
		Setting up of R & D and Consultancy service Cell	04
		Setting up of Entrepreneurship Development Cell	04
		Additional infrastructure for introducing new courses	…..
		Additional infrastructure for increasing Intake in existing courses	……
02.	Existing polytechnics (10 number)	Up-gradation of Laboratories	60
		Modernization of Workshop	10
		Modernization of Library	10
		Development of E-Learning for accessing courses	10

		Up-gradation of centralized Computing Center	10
		Setting up of Industry Institute Partnership Cell (IIPC)	10
		Setting up of Training & Placement Cell	10
		Setting up of R & D and Consultancy service Cell	10
		Setting up of Entrepreneurship Development Cell (EDC)	10
		Additional infrastructure for introducing new courses	…..
		Additional infrastructure for increasing Intake in existing courses	…..
03	Community College	Setting up additional facility for Community College in existing and new Polytechnics	31
04	Woman University at Jorhat	Additional infrastructure for introducing new courses	----
05	Assam Science & Technology University at Guwahati	Additional infrastructure for introducing new courses	-----
06	Directorate of Technical Education	Establishment of Curriculum Development Cell	01

(B)   New technical institutions (2022-2023)

Sl. No.	Category of Institution	Infrastructure	Likely Number
01	New Engineering College	Additional infrastructure for introducing new courses. Proposed Goalpara Engineering College may be in PPP mode as recommended.	……
02	New polytechnics	Additional infrastructure for introducing new courses	……

Sl. No.	Category	Eligibility	Likely Number
03	New Community College	Setting up additional facility for Community College in existing and new Polytechnics	......

(C) Scholarships and Internships

Sl. No.	Category	Eligibility	Likely Number
01	Scholarship Schemes	For students acoring average of 75% and above in qualifying examination and annual inome of parents less not exceeding Rs. 8 Lakhs per annum, introduction of scholarships in diploma, undergraduate and postgraduate engineering level 1. Rs 4000/- per month for general Diploma in Engineering courses (for 300 students) 2. Rs 6000/- per month for technical and professional UG courses (200 students) 3. Rs 10000/ per month for master degree in areas identified as special need areas by the Government of Assam	600
02	Incentives for Internship	For academic internship in the final year of professional diploma/ degree courses(for a maximum duration of 1/2 months) in cutting edge technology areas, the following scheme is suggested: a) Travel Grant as per actual using the shortest route b) Fees charged by the institute in India and abroad The areas have to be identified by the concerned HOI and approved by the Government of Assam.	10
03	Budgetary provision for Apprenticeship	Government departments, PSUs and other organizations need to create necessary budgetary provision to accommodate apprenticeship. The Government may take necessary action in this regard. As per National Apprenticeship Training Scheme, the	2.5-10% of total manpower of an

		monthly stipend for Degree Holder is Rs. 4984.00 and for Diploma holder is Rs.3542.00 (likely to be revised), 50% of which is reimbursable to the employer from Government of India.	organization (as per recommendations of MHRD.

The Three-Year Action Plan (2017-18 to 2019-20)

A.   Introduction.

1. The Three-Year Action Plan is based on the Seven-year Strategic Agenda described above. The Action Plan, however, focus on immediate actions needed in the Three-year period 2016-17 to 2019-20.

B.   Baseline (2016), Medium Term Target (2019)

2.   The baselines on major indicators of Technical Education and the targets for the medium term have been presented in Tables 1 and Table 2 and Table 3

3.   Provided the resource gap is adequately addressed, the medium term targets are feasible and implementation capacity will have to be geared up to meet them.

C.   Assessment of existing programs and rationalization of schemes and programs

4.   The Department of Technical Education is required to reassess the existing development schemes relating academic and infrastructure development of Engineering Colleges and Polytechnics of Assam. It is also important to reorient the various courses and programs to meets the rapid changes in technology in our society. The growth of technical education is justified as it will improve the access to technical education, vital to promote Sustainable Development. With adequate reforms and policy support, there can be a sea change in the Technical Education.

D. **Programs and Schemes in Three Year Action Plan**

5.   The Department proposes to focus on the following schemes in the medium term

(2016-17 to 2019-20).

Sl. No.	Category of Institution	Infrastructure	Likely Number
01.	Existing Engineering College (04 Number)	Up-gradation of Laboratories	20
		Modernization of Workshop	04
		Modernization of Library	04
		Development of Video Conference Room	04
		Up-gradation of Centralized Computing Center	04
		Setting up of Industry Institute Partnership Cell (IIPC)	04
		Setting up of Training & Placement Cell	04
		Setting up of R & D and Consultancy service Cell	04
		Setting up of Entrepreneurship Development Cell	04
		Additional infrastructure for introducing new courses	…..
		Additional infrastructure for increasing Intake in existing courses	……
02.	Existing polytechnics (10 number)	Up-gradation of Laboratories	60
		Modernization of Workshop	10

		Modernization of Library	10
		Development of E-Learning for accessing courses	10
		Up-gradation of centralized Computing Center	10
		Setting up of Industry Institute Partnership Cell (IIPC)	10
		Setting up of Training & Placement Cell	10
		Setting up of R & D and Consultancy service Cell	10
		Setting up of Entrepreneurship Development Cell (EDC)	10
		Additional infrastructure for introducing new courses	…..
		Additional infrastructure for increasing Intake in existing courses	…..
03	Community College	Setting up additional facility for Community College in existing and new Polytechnics	31
04	Woman University at Jorhat	Additional infrastructure for introducing new courses	----
05	Assam Science & Technology University at Guwahati	Additional infrastructure for introducing new courses	-----
06	Directorate of Technical Education	Establishment of Curriculum Development Cell	01