Project Concept Note and Proposal

Title of the Project: Training on Computer Aided Design(CAD)/ Computer Aided Manufacturing (CAM) Application on Computerised Lain and Cutting Machine.

Implementing Organization: Department of Textiles (DoT), Ministry of Textiles and jute.

Summary of the Project: Providing a short training course to the teachers of Textile educational Institutions under the Department of Textiles (DoT) on designing garments pattern by Computer Aided Design (CAD) software and operating Computer Aided Manufacturing(CAM)machine to create skilled human resources in textile sector in order to tackle the challenges of Fourth Industrial Revolution(4IR).

Background of the project: Innovember 22-23,2021 DoTparticipated in a 4IR related workshop arranged by Aspire to Innovate (a2i)programme of the Information and communication (ICT) Division.According to the advice of a2i programme, DoTtook this4IRrelated pilot project.

Application of CAD and CAM in garments pattern making and cutting process:

CAD: CAD is a set of software tools compiled in a computer application to assists product designer in creating a virtual representation of the artefacts they are designing. It helps in giving dimension to any design, experimenting changes on it, configuring the design according to needs, archiving the design, exchanging of data and information related to the design between teams and organization, adding progress of the designs for future analysis, assisting tool for product manufacturing by means of a computer system which may include both hardware and software..

CAM: Computer Aided Manufacturing (CAM) is the use of software and computer-controlled machinery to automate a manufacturing process.

Pattern: In sewing and fashion design, a pattern is the template from which the parts of a garment are traced onto woven or knitted fabrics before being cut out and assembled.

Process: First of all,garments patterns are designed by CAD software and with the CAM technology plied fabrics are cut automatically in Computerized Lain and Cutting Machineaccording to the designed pattern.

Objectives:

1) To assist in teaching the students about CAD/CAM application on computerized lain and cutting machine providing a short training course to the teachers of Textile educational Institutions under DoT.

2) To create skilled manpower in computerized garments pattern design and automated cutting section of textile industries.

3) To facilitate employment in CAD/CAM section of textile industries.

4) To gear up quality education in textile sectors to meet Sustainable Development Goals (SDGs).

5) To confront with the challenges of 4IR .

Relevance:

Over time, world history has witnessed several industrial revolutions. We boarded the ship of water and steam based first industrial revolution, grabbed the steering wheel of electric power oriented second industrial revolution,crossed the electronic and information technology oriented third industrial revolution and now have reached the shores of Fourth Industrial Revolution(4IR) which is mainly building on the third-digital revolution. The 4IR focuses on the continuation of automating conventional production and industrial systems using modern and smart technologies. As Bangladesh's economy is mainly stands on textile industries, to sustain in world economy it has to walk with the 4IR in the same line. Using CAD software in designing garments pattern and operating CAM machine are vital part of that automation in textile industries.

But as per industry consultants, textile sector lacks skilled manpower in this section. Though this topic is included in textile educational syllabus, teachers lack as much practical knowledge as they should have about it.

As Textiles Act-2018, Article No 11(7) says, "As may be directed by the Government, the department shall be responsible for qualitative management of education in the Textile Engineering Colleges,Textile Institutes and Textile vocational institutes or equivalent institutes", a short training course conducted by DoT for the teachers will assist them in teaching the students about it which will, as a result, avail the students of the employment opportunities in this section of Textile Industries by enhancing the knowledge and skill and it will,inevitably,ease the confrontation with the challenges of the 4IR. In terms of reality,this project is very much relevant.
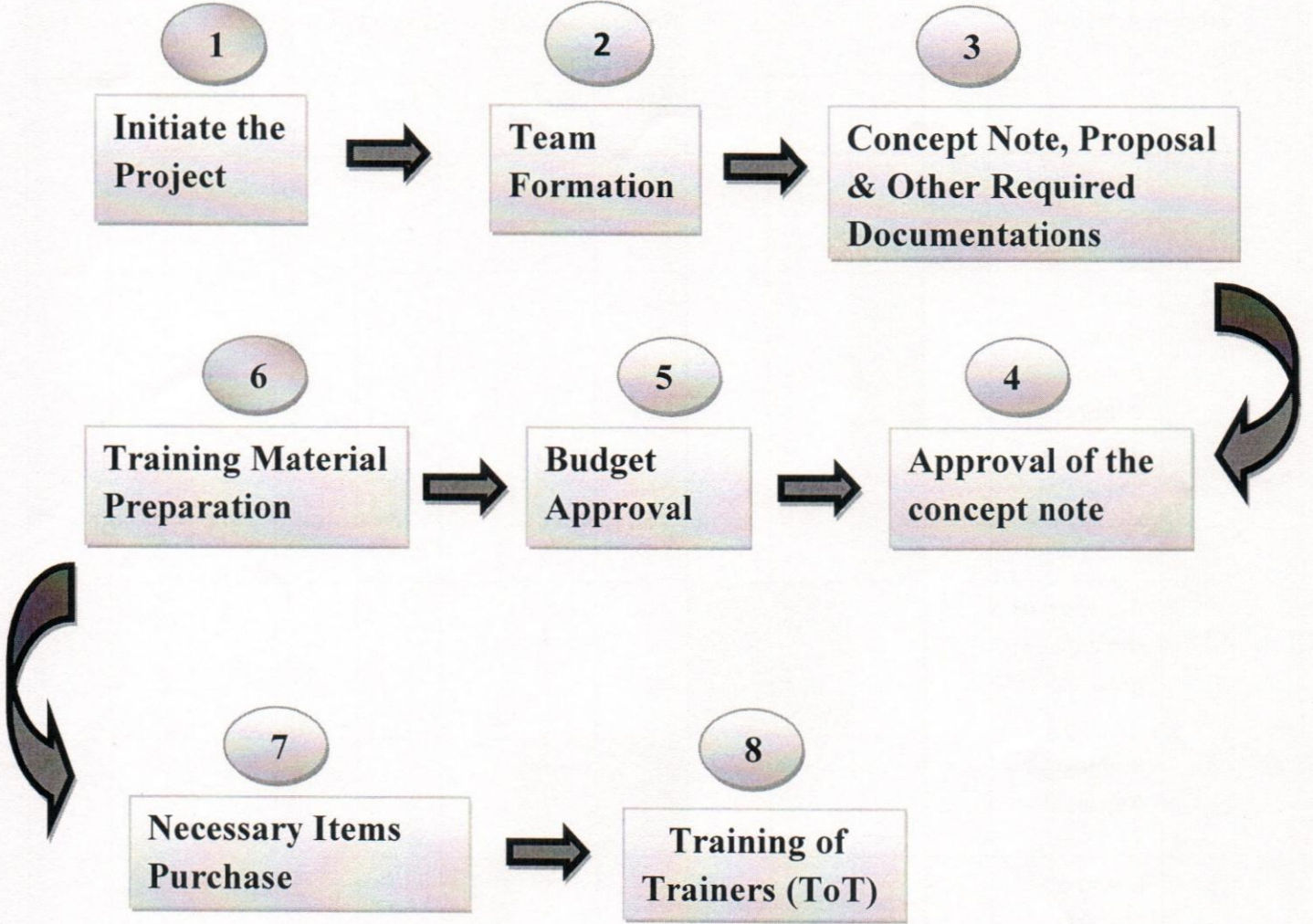
Project Details at a glance:

1	Project name	Training on Computer Aided Design(CAD)/ Computer Aided Manufacturing (CAM) Application on Computerized lain and cutting machine
2	Project Type	Pilot (A Short Training Course)
3	Trainning Course Topic:	Garments pattern making/designing by CAD Software and application through CAM machine.
4	Implementing time	1st January 2022 to 31st December 2022 .
5	No of Venue	3
6	Venue	1. Dr. M.A Wazed Mia Textile Engineering College, Rangpur. 2.Begum Amina Mansur Textile Engineering Institue,Kazipur,Sirajganj. 3.ShahidAbdurRabSerniabat Textile Institute,Gournadi,Barisal.
7	Trainee	Teachers of textile engineering colleges and institutes under Department of Textiles.
8	Number of trainee	10 persons in each venue. (Total 30 Persons).
9	Number of trainer	3 persons in each venue.
10	Training period	5 days in each venue (Total 15 Days).
11	Number of session	15 sessions in each venue (Total 45 sessions).
12	Budget	9,00,000 BDT
13	Source of budget	In-house Training Budget of 2022-2023 fiscal year

Project Implementation Team Members:

No.	Name and Designation of the officials	Designation in the Team
1.	Director(Planning and Development), Department of Textiles.	Convenor
2.	Mr.Raju Ahmed Deputy Director (Technical),Department of Textiles.	Member
3.	Principal(Concerned Institution)	Member
4.	Mr. Mrittunjoy Kumar Mohanta Assistant Director(Tech),Department of Textiles.	Member
5.	Mr. Md. Monirul Islam Assistant Director (Tech),Department of Textiles.	Member
6.	Mr. Md. Delwar Hossain Assistant Director (Tech),Department of Textiles.	Member
7.	Mr. Subrata Kumar Ghosh Assistant Director (Tech),Department of Textiles.	Member Secretary

Project Roadmap:

```
   ( 1 )                    ( 2 )                    ( 3 )
┌──────────────┐        ┌──────────────┐        ┌────────────────────────┐
│ Initiate the │   ⇒    │ Team         │   ⇒    │ Concept Note, Proposal │
│ Project      │        │ Formation    │        │ & Other Required       │
└──────────────┘        └──────────────┘        │ Documentations         │
                                                 └────────────────────────┘

   ( 6 )                    ( 5 )                    ( 4 )
┌────────────────────┐  ┌──────────────┐        ┌──────────────────┐
│ Training Material  │⇒ │ Budget       │   ⇒    │ Approval of the  │
│ Preparation        │  │ Approval     │        │ concept note     │
└────────────────────┘  └──────────────┘        └──────────────────┘

   ( 7 )                    ( 8 )
┌──────────────────┐    ┌──────────────────┐
│ Necessary Items  │ ⇒  │ Training of       │
│ Purchase         │    │ Trainers (ToT)    │
└──────────────────┘    └──────────────────┘
```

Gantt Chart for Action plan:

Step No	Activity	Timeline for next steps in 2022											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Formation of Team	▓											
2.	Concept Note, Proposal & Other Required Documentations		▓										
3.	Approval of the concept note			▓	▓								
4.	Budget Approval					▓	▓						
5.	Training Material Preparation							▓					
6.	Necessary Items Purchase								▓				
7.	Training of Trainers (ToT)									▓			

Expected Outcome:

The project of providing a short training course to the teachers will assist them in teaching the students about Computer Aided Design(CAD)/ Computer Aided Manufacturing (CAM) Application on Computerized Lain and Cutting machine which will, as a result, avail the students of the employment opportunities in this section of Textile Industries by enhancing the knowledge and skill and it will, inevitably, ease the confrontation with the challenges of the Fourth Industrial Revolution.