A series of slides present here is an attempt to explain why vocational training is important for any country and how we can develop an industry ready technician through an unique training methodology: A case study of Toyota Technical Training Institute, Bangalore, India.
Who we are?
Toyota Kirloskar Motor (TKM) Pvt Ltd is a subsidiary of Toyota Motor Corporation (TMC) Japan. TKM was established in the year 1997.

### Overview of Toyota Kirloskar Motor Private, Ltd.

<p>| | |</p>
<table>
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<tr>
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<tbody>
<tr>
<td><strong>Established</strong></td>
<td>October 1997 (start of production: December 1999)</td>
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<tr>
<td><strong>Location</strong></td>
<td>Bidadi -Suburb of Bangalore, Karnataka, India</td>
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<tr>
<td><strong>Equity participation</strong></td>
<td>TMC: 89%, Kirloskar Group: 11%</td>
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<tr>
<td><strong>Initial Investment</strong></td>
<td>INR 7 billion</td>
</tr>
<tr>
<td><strong>Number of employees</strong></td>
<td>Approx. 7000</td>
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</tbody>
</table>
• Land Area: 432 Acres
• Production Capacity plant 1: 90,000/Yr
• Production Capacity plant 2: 1,20000/Yr
• No. of Employees: 5000 (97% are from Karnataka)

Located in the heart of Bidadi Industrial Area

#### TKM Production Structure

<table>
<thead>
<tr>
<th></th>
<th>Jul-11</th>
<th>First half of 2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Plant Annual production capacity</td>
<td>80,000</td>
<td>90,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Second Plant Annual production capacity</td>
<td>80,000</td>
<td>120,000</td>
<td>210,000</td>
</tr>
<tr>
<td>Production total</td>
<td>160,000</td>
<td>210,000</td>
<td>310,000</td>
</tr>
<tr>
<td>Investment</td>
<td>Approximate Rs 275 crores</td>
<td>Rs 898 crores</td>
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</table>

Plant 1, was established in 1997 and plant 2, in 2010.
At present we manufacture the above types of cars.
In addition to manufacturing cars, we also contribute to local community via:

a) TTEP (Toyota Technical Training Education) programme where in we identify good Industrial Training Institutes (ITIs) in the country and upgrade their MMV (Motor Mechanic Vehicle) trade with training material, cut models, training of trainers so that such training Institutes can improve the training capability and also improve employability of students seeking job in Industry.

b) TSEP (Toyota Safety Education Programme) where school children are given awareness training on Traffic safety through games.

c) Environmental awareness amongst employees & school children by organising environmental day and painting competition. So far 1,25,000 saplings have been planted in the company premises and by 2014, 5 lakhs saplings will be planted.

d) Other activities in a small way includes renovation of rural school building, Police Station and construction of water tank.

In 2009 TKM bagged CII-ITC sustainability award for commitment to environment & social contribution.

Note:
Toyota Kirloskar Motor Pvt Ltd, has received CII-ITC Sustainability Awards 2009: Commendation for Significant Achievement Award 2) IIPM & The Sunday Indian STATE EXCELLENCE AWARDS 2009 for Corporate Social Responsibility
BACKGROUND FOR ESTABLISHING TOYOTA TECHNICAL TRAINING INSTITUTE
Why vocational training is necessary for any country?

• Imparting right Skill, Knowledge & Attitude are the driving force of economic growth & Social development for any country
• Right skill inculcate dignity of labour, create greater awareness towards environment, safety and health concern
• Right skill improves employability, productivity & living standard
• Right Skill Strengthens competitiveness of the country
“Only people can make a difference”

To day only difference between companies are its people & their work culture. Other things like technology, equipment, manufacturing processes and component supplier are almost same for all companies. It is only people who can make a difference in producing quality products at an affordable cost.
Indian automobile market is growing rapidly. As per industry estimate, this sector alone may provide employment to about 25 million people by 2015. Hence there is a huge demand for skilled technicians in the country.
A skilled technician is one, who can achieve Safety, Quality, Cost, Productivity in his work. In addition, he should also be a strong believer of continual improvement.
This slide talks about the skill, knowledge and attitude gap that exists between industry requirements and what we normally get from formal education systems like Industrial Training Institutes (ITI), Polytechnic etc. Hence, on one side there is a huge employment opportunity in the country and on the other side there is also huge unemployment. From the above slide it is clear that students coming out of formal education system lack knowledge and skill that is required to achieve Safety, Quality, Cost and Productivity (SQPC).

In addition, right attitude for work is missing amongst employable students.

Keeping the above background in view we decided to establish a model training institute with industry relevant curriculum which can deliver industry ready technicians from day 1.
Before deciding what target group of students our Institute should admit, we conducted a survey to find out where students go after passing their 10th standard. (i.e. High School) We did this survey in 2005.

1. We found that about 10% of High School Passed students in Karnataka i.e. about 40,000 can not take up further education due to family circumstances and financial constraints.

2. Hence as a part of CSR activity of TKM, we decided to admit only this category of students in our Institute and make them employable with world class skill training.

3. The survey also found that most of the students who drop out after 10th Std. comes from rural areas of Karnataka.
PROJECT OBJECTIVE
Objectives for establishing TTTI

- To provide free training & education to intelligent but financially poor students from rural area & make them employable
- To provide opportunity to acquire specialised automobile manufacturing Skill as per industry requirement
- To develop leadership attributes through Toyota Way discipline who can contribute to Indian industry
This is the course outline of Training being offered by this institute.

| Training offered | 1. Automobile Weld  
|                  | 2. Automobile Assembly  
|                  | 3. Automobile Paint  
|                  | 4. Plant Maintenance (Mechatronics)  
| Total Annual Intake | 64 (every year in July)  
| Entry Qualification | 1. 10th Standard Pass in first attempt with minimum 50% in Maths, Science and overall and < 18 years of age.  
|                      | 2. Should have studied from rural school in Karnataka (admission only for Karnataka students)  
|                      | 3. Parents are economically poor and can not afford further education  
| Training Period | 3 Years (6 semester) offered free of cost, with stipend & fellowship  

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**TTTI Course Outline**

| Training offered | 1. Automobile Weld  
|                  | 2. Automobile Assembly  
|                  | 3. Automobile Paint  
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**This is the course outline of Training being offered by this institute.**
This is the Industry Relevant curriculum adopted by TTTI. It may be seen that 33% of the curriculum is devoted towards Attitude Development (Body & Mind Development). This is one of the uniqueness of this institute,

The break up of 3 years Knowledge, skill and Attitude training is as under:

Knowledge 1680 hours  
Skill 2560  
Attitude 2096  

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Total 6336 hours
At the end of 3 years training, the students should become an ideal team member in the production line with the above attributes. These are our expected training outcome.
TRAINING CONCEPT FOR IMPLEMENTING THE PROJECT
This is a concept sheet for implementing Body & Mind (Attitude building) Training.

We believe that the outcome of good Body & Mind Training should develop following attributes:

a) Team Spirit b) Sense of responsibility c) Challenging mind d) Ready for tough job e) Respect for seniors and peers f) Good corporate citizenship.

The above objective shall be achieved through:

a) Daily Yoga & Meditation b) Planned sports and extra curricular activities c) regular physical fitness exercise d) undertaking Social services to help the needy etc.
This slide explains about the concept of developing right knowledge amongst students.

We believe, in addition to imparting subject knowledge, it is necessary to provide opportunity for students to acquire general knowledge, use of IT tools, enhancement of communication skill through seminars, mini project etc.
This slide is about the concept of imparting skill training. We believe, skill training is incomplete without the knowledge of Safety, Quality, Cost and Productivity. Hence the training on aspects like Quality Circle, Workplace improvement / good housekeeping called as 5S, Danger Prediction through critical eye, Time management, Cost management, creative suggestion etc should become a part of the skill training/
We believe after 3 years of rigorous training on Knowledge, Skill and Attitude as per our implementation strategy/concept, the student will become an ideal team member in the production line with the above attributes.
PROJECT DETAILS:
INFRASTRUCTURE
INVESTMENT
STUDENT SELECTION
PROCEDURE,
A Brief about TTTI:

TTTI was established in the year 2007. This is the only technical institute of Toyota established outside Japan.
<table>
<thead>
<tr>
<th>TTTI INFRASTRUCTURE</th>
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<tbody>
<tr>
<td>1. Training Center : 2900 Sqm</td>
</tr>
<tr>
<td>4 Workshop cum Class room</td>
</tr>
<tr>
<td>1 Auditorium</td>
</tr>
<tr>
<td>8 independent class rooms</td>
</tr>
<tr>
<td>1 Library</td>
</tr>
<tr>
<td>1 Computer Room</td>
</tr>
<tr>
<td>2. Sports Ground : 25000 Sqm</td>
</tr>
<tr>
<td>400 M Track</td>
</tr>
<tr>
<td>Foot Ball</td>
</tr>
<tr>
<td>Basket Ball</td>
</tr>
<tr>
<td>Cricket</td>
</tr>
<tr>
<td>3. Dormitory : 2700 Sqm</td>
</tr>
<tr>
<td>140 room (280 Students),</td>
</tr>
<tr>
<td>4 Guest Room</td>
</tr>
<tr>
<td>Indoor Game</td>
</tr>
<tr>
<td>Gym</td>
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</tbody>
</table>

This slide is about TTTI Infrastructure. Total area allocated to TTTI is 35000 SQ Meter.
This slide is about TTTI investment as on July 2011.

<table>
<thead>
<tr>
<th>SL NO.</th>
<th>INFRASTRUCTURE</th>
<th>RS MILLION</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TRAINING CENTER</td>
<td>040</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HOSTEL</td>
<td>055</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>SPORTS GROUND</td>
<td>015</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>EQUIPMENT</td>
<td>166</td>
<td>166</td>
</tr>
<tr>
<td>3</td>
<td>AVERAGE ANNUAL RUNNING</td>
<td>024</td>
<td>024</td>
</tr>
<tr>
<td></td>
<td>EXPENDITURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>
Since we get large number of application (2000+ for 64 seats,) Students are selected based on Entrance Examination followed by Physical test (which checks students endurance) and Skill Test (which checks students hand and eye co ordination capability)

We also hold interview with the parents to asses their financial status.

Selected students have to undergo medical check up before being admitted to the institute.
As part of CSR activity, we do not charge any training fee to the students.
We pay monthly stipend as mentioned about.
In order to develop challenging ability amongst students, we also award fellowship as per details given above. It may be noted that fellowship is linked to display of good attitude.
ACTION PLAN FOR IMPLEMENTING
BODY & MIND TRAINING
(3 years-120 weeks 2096 hours)
A typical day activity of trainee will be as per details given above.

1. 6-9 AM Morning activities
2. 9-4 PM Regular academic Training
3. 4-6 PM Sports and one day in a week Gardening
4. 8-10 PM Home work and study hours.
Dormitory Room: An innovative approach

Get up at 5.45 A.M Make up the room Proceed for morning activity

Perfect room condition to be maintained 24x7 and 365 days. Here students are taught how to spread bed sheet, how to fold mosquito curtain, how to keep their clothes and books in spic & span.

Senior students should teach juniors and also undertake audit of rooms at regular intervals. (this develops sense of responsibility amongst seniors). Each room is occupied by one senior and one junior student
Every day 15 minutes health run is a must for all students. This is a photograph of daily health run activity.
A senior student by turn will train others in various yoga postures and meditation technique.
Line discipline to be maintained be it in canteen or workplace. Here seniors take part in serving others.
Every student including staff, teachers should wash their plates, spoon, tumbler and have to be segregated and kept in the respective bins. Staff should lead by example. A concept of good housekeeping is implemented through this activity.
Before a student leaves dormitory and proceed to training session, they have to do certain activities like:

a) Attendance check
b) Health condition check
c) Uniform check
d) Finger Check
e) Receive any special instruction from the dormitory staff
Checking of uniform and other items before proceeding to training session. This ensures good time management and sense of responsibility.
Cultivating the habit of always walking in Safety path. Once this becomes a habit, the boys will implement even outside the campus/village/cities.
Cross the road through finger check to ensure nothing is coming from left or right. This habit is required inside the plant, to avoid accidents with the moving vehicles.
Morning Assembly includes 3 minutes of stretching exercise followed by:

a) Reading of Human Relation Principles
b) Explaining one technical term
c) Reading one difficult word and making sentences

experience sharing by senior students and News reading.

The objectives of these activities are:

a) Improving communication skills of each student
b) Sharing of Knowledge
c) Developing self confidence of students.

Every student of the institute gets at least 3 chances/semester to come on the dais and speak.
Here the concept of 5 S is implemented. This is a simple Japanese tool for good house keeping through which a student can understand abnormalities, danger condition etc. This is a part of safety, quality, cost and productivity improvement training. Once adopted as a habit, this becomes tool for disciplined way of living in personal life too. We expect the students to continue this habit throughout his life time and also teach his brothers/sisters and friends in their home town.
Waste segregation training is an important activity from environmental management point of view.
Every day sports teaches them the concept of team work and never give up attitude and builds stamina.
**TTTI STUDENTS PHYSICAL FITNESS TEST EVENTS**

<table>
<thead>
<tr>
<th>EVENT</th>
<th>PURPOSE</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push Ups</td>
<td>Develop Shoulder Strength</td>
<td>1st Year: 40 to 50 Push ups</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Year: 50 to 60 Push ups</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd Year: 60 and Above Push ups</td>
</tr>
<tr>
<td>Crunches</td>
<td>Develop Abdomen Strength</td>
<td>1st Year: 40 to 50 Abdomen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Year: 50 to 60 Abdomen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd Year: 60 and Above Abdomen</td>
</tr>
<tr>
<td>Standing Broad Jump</td>
<td>Develop Overall Body Strength</td>
<td>1st Year: 1.75 to 2.05 meters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Year: 2.01 to 2.25 meters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd Year: 2.50 meters and Above</td>
</tr>
<tr>
<td>BEEP Test</td>
<td>Work for Longer Duration without Fatigue</td>
<td>1st Year: 9.5 to 10 Stages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Year: 10 to 10.5 Stages</td>
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<tr>
<td></td>
<td></td>
<td>3rd Year: 10.5 and Above</td>
</tr>
<tr>
<td>Grip Test</td>
<td>To Know Grip Strength</td>
<td>1st Year: 45 to 50 Kgs</td>
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<tr>
<td></td>
<td></td>
<td>2nd Year: 51 to 55 Kgs</td>
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<tr>
<td></td>
<td></td>
<td>3rd Year: 56 and Above</td>
</tr>
<tr>
<td>Back Strenght Test</td>
<td>To Develop Back Strength</td>
<td>1st Year: 135 to 140 Kgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Year: 141 to 145 Kgs</td>
</tr>
</tbody>
</table>

This physical fitness test is conducted once in 2 months to check students shoulder strength, abdomen strength, explosive strength, endurance, grip and back strength. This would help them to develop right stamina to stand and work for 8 hours everyday in production line without developing any back or leg pain.
This is our evaluation sheet to evaluate students' attitude. This is evaluated on a monthly basis.
ACTION PLAN FOR IMPLEMENTING KNOWLEDGE TRAINING
(3 years - 56 Weeks 1680 Hours)
List of subjects being taught over a period of 3 years (56 weeks = 1680 Hours) are given above. Apart from basic English, science mathematics and engineering subjects, we teach Home management as subject so that they should know the importance of family, social life, respect for seniors, money management etc.
This is a Toyota specific Knowledge training on safety, quality, Cost and productivity (SQPC). Each student will undergo about 110 hours of training over a period of 3 years.
This ppt shows safety calendar and health card report. Green colour indicates zero accident on that day. Red colour indicates some accident took place on that day. Down below is a format to be written by student in-charge, whenever any accident happens. Here they develop habit of problem solving by analyzing what happened, how it happened and what temporary and permanent measures to be taken so that such accidents does not repeat.

<table>
<thead>
<tr>
<th>Sr No</th>
<th>What happened (Concern/Problem)</th>
<th>Who</th>
<th>Where (Location)</th>
<th>When (Time/Date)</th>
<th>How</th>
</tr>
</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Temp Measures</th>
<th>By When</th>
<th>Responsible Person</th>
<th>Final Measures</th>
<th>By When</th>
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</table>
Giving training on how to monitor and save scarce resources like water, electricity in the training Center. This is a training on cost management. The chart shown here is on monthly consumption of water and electricity in the Dormitory. Any excess consumption against target is analysed by students and counter measures taken.
Every student has to submit two suggestions per month. This would help students to develop creative thinking ability. Suggestions could be in the areas of workability improvement, quality enhancement, cost reduction, productivity improvement.

As part of motivation, Students are given cash award and certificate for giving high value suggestion.
With this training students develop critical eye for any abnormalities and solve safety problems, be it in class room, workshop, play ground or dormitory. All students should submit at least one report per month.
This is a sample QC Circle activity done by 3rd year students.
ACTION PLAN FOR IMPLEMENTING SKILL TRAINING
(3 years - 24 weeks 960 Hours)
Fitting Workshop (1 week = 40 Hrs)

1. Car Model
2. Limit Switch

Safety wears

4s of area

This gives a view of one of the workshop facility
Automobile Assembly (24 weeks)

1. Engine Disassembly & Assembly
2. Drive Train
3. Steering System
4. Alignment & Balancing

Fundamental Skill:
Safety
Bolt Tightening
Nut Tightening
Screw Tightening
Screw Grommet
Plug hole Grommet
Connector connection
Hose Connection
Flare nut tightening
Automobile Paint (24 weeks)

1. Sealer Applications
2. Sanding
3. Spray Paint
4. Surface defects
   a) Production Defects
   b) Market Defects

Fundamental Skills:
Safety,
gun angle, Distance,
Speed, Posture
Mechatronics (Plant Maintenance) 24 weeks

- Basic Wiring
- Motor Fundamentals
- Sequencing
- Machine Structure (gears mechanism)
- Hydraulics
- Pneumatics
- PLC
- Sensors
- Robot
- Electronics
- Fundamental skills:
  - Safety,
  - Colour Code, Earthing, soldering, welding, plate making
Automobile weld (24 weeks)

1. Shielded metal ARC
2. Gas (CO2)
3. Metal Inert Gas
4. Tungsten Inert Gas
5. Brazing
6. Resistance (spot)

Fundamental skill:
Safety,
Arc gap, Angle, speed
This is the evaluation sheet during skill training. Students are evaluated on the following aspects:

1) Working Method
2) Time management
3) Quality of work
4) Safety management
5) Team work
6) Communication
7) Cost management
8) Knowledge test
This is a sample daily report, written by each student after undergoing skill training. All students should write their report only in Engineering Script and also should explain using free hand drawing.
These are sample sheet metal models done by the students.
ON THE JOB TRAINING AT PLANT

(2 years- 40 Weeks @ 10 weeks/semester
1600 Hours)

Students are deputed to plant training from 2nd year starting from 3rd Semester. This will be 40 weeks training @10 weeks/semester.

The basic thinking way of skill training is that each student should knowledge training followed by basic practical training in the training center before going to the plant training.
This ppt shows students undergoing plant training in their respective trade area.
While students are “on the job training” in the plant, the trainer in the plant will make a weekly report of student performance. They should score minimum 3 to be declared as passed from that process training.

The students evaluation is done on quarterly basis:

1. Attendance
2. Punctuality
3. Skill Attainment
4. Discipline
5. Adoptability
6. Team Work (SQPC)
7. Stamina
8. Kaizen mind
Conclusion:
In this way, a student completes his 3 years (6333 hours) training and becomes an industry ready technician from day 1.
In order to assess the quality of performance of TTTI passed students in industry, we asked the concerned supervisor in the industry to rate our students' performance vis-à-vis an equally qualified student from other institute (Industrial Training Institute-ITI).

The ratings used are:

- Poor 1
- Average 2
- Good 3
- Excellent 4
This feedback form was taken from industry where our students are working for the past 1 year. The concerned supervisor was asked to rate TTTI alumni performance with non TTTI (i.e., from other educational institutions like Industrial Training Institute-ITI) alumni working in the same grade and period.

**Ratings:** 1 Poor, 2 Average, 3 Good, 4 Excellent

From the evaluation sheet, it is clear that TTTI students are performing as per TTTI training outcome expectations.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Task Related</th>
<th>TTTI Alumni</th>
<th>Other Institution Alumni</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Work Habit</td>
<td>4</td>
<td>3</td>
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<td>2</td>
<td>Task Related</td>
<td>3</td>
<td>2</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Work Quality</td>
<td>4</td>
<td>3</td>
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<tr>
<td>4</td>
<td>Work Quantity</td>
<td>4</td>
<td>3</td>
<td></td>
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<tr>
<td>5</td>
<td>Relationship</td>
<td>4</td>
<td>3</td>
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<tr>
<td></td>
<td>with Others</td>
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<tr>
<td>6</td>
<td>Leadership</td>
<td>4</td>
<td>3</td>
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<tr>
<td>7</td>
<td>Work Attitude</td>
<td>4</td>
<td>3</td>
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<tr>
<td>8</td>
<td>Life Skills</td>
<td>4</td>
<td>3</td>
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</tbody>
</table>

Note: 1: Poor, 2: Average, 3: Good, 4: Excellent
THANK YOU