## School of General Education



Dr R.K. Joshi is the Founder Chairman of Bhartiya Skill Development University which is a unique skill development University in India. It is the first of its kind promoting skill development through actual practical skills training based on the concept of "One Machine—One Student". The University is working on the model of Swiss Dual System of Skills Training to impart world class skills training and awards UG, PG and Ph. D. degrees to the successful students. The far sighted vision of Dr R.K. Joshi has paved the way to enable an Employment-Ready work force leading to the making of a Skilled India.

It gives me immense pleasure to introduce the first edition of the half-yearly Newsletter by the *School of General Education* of *Bhartiya Skill Development University.* We are proud to be the first pure Skill Development University in the country playing a stellar role in ushering a new era of skills training in India, paving the way towards the making of a skilled India. The training is based on Swiss Dual System comprising Vocational School and "On the job Training" so as to suit the industry needs. The University offers B. Voc, M. Voc, Diploma and Ph.D. programs in various skills. The uniqueness of the University lies in the concept of 'One Student, One Machine' and in its flexible Entry and Exit facility.

The School of General Education recognizes that the purpose of education should be to benefit the students in their personal, professional and social lives. The curriculum of the School of General Education plays a pivotal role in building the student's capacity to be an informed and responsible citizen. It provides them with the opportunity to enhance their ability to think critically, develop their mathematical and communication skills, stimulate their capacities for innovative thinking and enrich their knowledge of the wider social, political, economic and cultural milieu of the world in which they live and work.

I congratulate the School of General Education for bringing out its Newsletter which is an important milestone in the growth of the School and University. This newsletter will serve as an archive for the achievements and accomplishments of the University in the coming years. I wish this Newsletter a bright future!

*Brig. (Dr.) S S Pabla, President, BSDU Jaipur*

### Relevance of General Education in Skill Development

*Dr. Surat Singh*
*Principal, School of General Education*

According to the HRD Ministry, around 1.5 million engineers enter the job market every year.

Though they have a degree, the dismal state of higher education in India does not equip them with adequate skills required for employment. Experts say that such a huge percentage of unemployed youth may cause serious instability in the socio-economic scenario in the country, along with widespread dissatisfaction and disillusionment.

A New Delhi based employment solution company *Aspiring Minds*, conducted a study focusing on the employability skills of 1,50,000 engineering students, who graduated in the year 2013. The findings were rather shocking. As many as 97% of graduating engineers desired to have jobs either in the field of *Software Engineering* or in the area of *Core Engineering*. However, only 3 % had suitable skills to be employed in the software or product market, and just 7 % could handle core engineering tasks.

The main reasons for unemployment as revealed by the study was that 73.63% of candidates lacked communication skills in English and 57.96% showed low analytical and quantitative skills. Due to a comparatively higher employment rate in the IT sector, students from other disciplines take up IT-related courses. The IT sector requires employees who are fluent and well versed in English, as within two years of experience on the job, they would have to communicate with international customers. Thus, if the quality of engineering graduates does not improve, IT sector hiring will decrease.

The lack of ability of the individual to deliver his views effectively at the interview leads to rejection of even the most brilliant candidate. This is because training institutions do not make an effort to ensure that the candidates develop their skills in a wholesome manner which can contribute towards client-handling and team communication skills.

*-Siddasth Bharwani, Vice President*
*Jetking Informative Limited*

In the present context of globalization, the demand for skilled and multi skilled workers has increased. Therefore, in the context of developing countries such as India, there is a critical need for quality skill development and training. In general, apart from the expertise in core subjects some of the prominent employable skills that employers seek are Communication Skills, Commercial Awareness, Positive Attitude towards work, Team Work, Problem Solving, Initiatives, Self-motivation, Adaptability, Stress Management, Creativity, etc.

In the Indian context, the issue of Skills has become an urgent strategic concern across various sectors. Recent researches have highlighted that social skills are a crucial component of employability and work-readiness. Soft skills are believed to be an indispensable requirement along with hard technical skills.

The *University Grants Commission* has launched a Skill Development scheme based on higher education as part of College/University education, leading to Bachelor of Vocation (B. Voc.) degree. The B.Voc. programme is focused on University and colleges providing undergraduate studies which would also incorporate specific job skills along with broad based General Education.

In the undergraduate curriculum, General Education is often contested with specialised education. It provides exposure to the whole range of disciplines and areas of knowledge associated by tradition or by institutional convention be it Humanities or Science. General Education also develops a set of crucial competencies (i.e. writing, speaking, quantitative analysis) expected of all educated men and women. The importance of highly specialised scientific and technical education is well recognised, but General Education is equally important for the holistic development of the student.

As per U.G.C norms, the General Education component should adhere to the University standards by emphasizing and offering courses providing holistic development up to a total of 40% of the curriculum. The U.G.C also mandates that adequate attention should be given to Language and Communication skills, so that at the end of the course, students should have good logical skills, understanding of the social, political, economic and natural environment, and be adept in collecting and organising information combined with adequate communication and presentation skills.

In view of the above, BSDU has introduced various subjects in General Education across the University in all the semesters. The basic purpose of imparting General Education is to provide the students with appropriate skills required at the professional front. This ensures that students have adequate knowledge and skills so that they are work ready after getting degrees as per industry requirements. Industry needs people who can think critically, write clearly and communicate with precision, cogency and force.

General education promotes responsible citizenship, ethical behavior, educational ambition, professional development and global integration. General Education enables decision making based on reference to the wider world and to the historical forces that have shaped it.

The School of General Education at BSDU, besides the soft skills, also imparts General knowledge, mathematical skills, understanding of social, political and economic governance, ethical and moral values with the support of a strong team of competent and experienced faculty members. The school has also installed a Digital Language Lab with highly sophisticated software aiming to improve the listening, speaking, reading and writing skills of the students.

I appreciate the efforts of my team in bringing out this Newsletter and hope to make it a regular feature. Efforts will be made to highlight the activities of the School of General Education for the benefit of the students and other readers.
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# Set "SMART" goals in your life

*Prof. Charanjeet K Pabla*
*CoE, BSDU*

*"If you want to live a happy life, tie it to a goal, not to people or things". - Albert Einstein*



Setting **"SMART"** goals is wise. Not knowing what you want and not planning how to get it, leaves your life aimless. Let's see what is meant by the word "SMART":

**S**= Specific
Goals should specify what you want to achieve. e. g *: I want to be on vacation on a warm beach for two days, in the  month of December 2018 and do not want to spend  more than Rs.6000/- .*

**M**= Measurable
This makes it possible to determine whether (or how far) it has been achieved.  e.  g.:  *I will save Rs.600/- per month for ten months, so by the end of tenth month I will have saved Rs.6000/- .*

**A**= Achievable
Are the goals you set, achievable?  e. g.*:  Is it possible for me to save Rs.600/- every month after paying all my dues? Am I right? Is it achievable?*

**R**= Realistic
Can you realistically achieve the goals with the resources you have?
Read your goals daily and visualize yourself accomplishing them. Revise your action plans if needed. e. g.: *Yes, fits my budget and is 80% realistic.*

**T**=Time-bound
When do you want to achieve the set goals?
e. g.: *By December 2018*

**Additional tips:**
- Record your goals.
- Measure your motivational level on a rating scale from 1 to 5;
  - 1 is forget it,
  - 5 is I shall do it.
- Measure progress on a similar scale.
- Find someone to discuss your progress regularly.

**Celebrate Your Accomplishments!**
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# Interaction: Pedagogy for Developing Communicative-Competence

*Dr. Sangeetha Noval*
*Assistant Professor, School of General Education*

Communication is all pervasive and an indispensable skill. Competence in communication skills has become a pre-requisite for success and growth in life. These skills not only aid in the achievement of the educational goals but also fulfil the social purposes. The growing utility of communication skills in *English Language* has created a great demand for effective pedagogies for its teaching.

Efficiency in *speaking skills is* crucial as everyone is required to communicate frequently at his workplace and in personal life. Therefore, the goal of teaching speaking skills is to develop the communicative competence so that the learners can conduct themselves more effectively in various situations.

Communicative Competence is the degree to which a communicator's objectives are attained through effective and appropriate interaction. Among the various pedagogies employed to teach Communication Skills in English to students, the *interactive* pedagogy can serve to be an effective one in developing the proficiency of language by improving their ability to express, interpret and negotiate meanings in a *shared context in the classroom.*

Language, according to Dr. *Berns* (a noted expert of ESL teaching) is interaction. It serves to be the basic unit of any type of communication. It is the basic dialogue which is the building block of conversation. It is an activity which is very personal and has a clear relationship with the society. In this view, language study should take into consideration the use of language in both *linguistic and in the situational context*. The l*inguistic context* deals with what is stated before and after a given piece of discourse and *situational context* includes the

details regarding the speaker and his social roles and the purpose of interaction.

Ample engagement of the students in interactions in English in the classrooms, where authentic information could be conveyed and received, also serving their interest and purpose, can generate an ease in using language among the learners as it involves expression and comprehension of thoughts and ideas. One listens to and responds to others in the target language, thereby working out interpretations of meanings through the interaction in a context. Such engagements help students learn and communicate to others by listening, talking, and negotiating meaning in a shared context. Teachers should create a classroom environment where the students have experiences of communication in real life situations, authentic activities and meaningful tasks that promote speaking skills.

The students should be encouraged not to lose their morale due to the mistakes made in the process of language learning. Learning a language requires participation and this practice generates perfection in the ability of producing an error-free language thus fostering feelings of confidence, satisfaction and security among students to actually use the language in real life situations. Such mastery is a wholesome influence that affects the life of the learners. The students have to be transformed from passive listeners to active users of learners. It is the duty of teachers to judicially select strategies to create opportunities in order to facilitate interaction in the classroom. The challenge looms even larger when the learners from non-English speaking backgrounds experience what is referred to as "language shock". It poses a struggle before them to learn the English language while maintaining a sense of identity related to their native culture.

The teachers at the foremost are required not to undermine the cognitive capacities of students coming from non-English speaking backgrounds, merely for the lack of their expression in the English language. As educators, we need to realize that a congenial and cordial atmosphere would accentuate language acquisition whereas, an unwelcoming and hostile environment would further add to the stress of the learners. Many students are made fun of and are humiliated when they attempt speaking English, due to which they end up being silent and withdraw from participating in classroom activities. This further interferes with their overall learning and achievement. Therefore, the English Language teachers should facilitate opportunities for interaction in the classroom, while maintaining the self-esteem and dignity of students.

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## Strategies to Improve Reading Fluency

*Ms. Prerna Srivastava*
*Assistant Professor, School of General Education*

Fluency is one of the essential requisites of language empowerment. It is the ability to read a text accurately, quickly, and with expression, thereby bridging the gap between *word recognition* and *comprehension.* It enhances a speedy understanding of language and also aids in its usage. When fluent readers read silently, they recognize words automatically. They group words quickly to help them gain meaning from what they read. In the beginning, readers may not be fluent, but reading practice in the classroom can help them develop this important skill. Fluency is associated with faster and effortless processing of the text. It eliminates the fear of unknown stimuli which leads to successful recognition and interpretation of the target language. Therefore, through necessary strategies this important skill should be developed in the students through classroom instruction.

Reading fluency with explicit directions on how to implement the strategies would be of great benefit to the language learners. Teachers are required to help the practitioners who have little to no experience with reading fluently to gain confidence, texts can be chosen from books, magazines, internet, or from other sources, where interesting reading material can be found. Reading the passage aloud and re-reading it aids in developing speed. Taking the practitioner into practice session where he would read along with the expert, trying to match the speed and expression of the expert through re-reading would definitely support him for better command and goal achievement. In sessions, when the practitioner is asked to perform Echo Reading, noticeable differences could be recorded to review and work on later.

Online reading lessons and audio books are interactive and prompt ways to get spontaneous response from the practitioners, who should be encouraged to read independently as often as possible. They should be allowed to choose topics that interest them which undoubtedly would stimulate them to read further. The passages should be repeatedly read as many times as needed until the reader experiences enhanced fluency. The strategies mentioned above would not only enhance the reading speed but also improve their spontaneity in speaking the language.

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## Tips for Effective Presentation Skills

*Ms. Vijayalakshmi Bhat*
*Assistant Professor, School of General Education*

The majority of people in the world are afraid of public speaking. A survey revealed that it was the number one fear, as people feared it even more than death! However, with a little bit

of planning and preparation, you can make a good presentation and with practice you will be able to speak quite well.

The first step is to determine the purpose of your speech. There are four broad purposes of communication. Your speech should be for the purpose of Informing, Inspiring, Impressing or Entertaining your audience. After you decide the purpose you can plan your speech and gather relevant information. Retain the most important points you need to make in your presentation as you will probably have a limited time to speak. Preparation is the key to making a good presentation.

Be confident and have faith in yourself. Each of us has a unique personality so it is better to improve oneself rather than imitate somebody else. Be as honest and simple as possible and you are sure to develop into a good speaker.

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# A Good Beginning Makes a Good Ending

*Ms. Pallavi Mathur*
*Assistant Registrar (Admissions), BSDU*
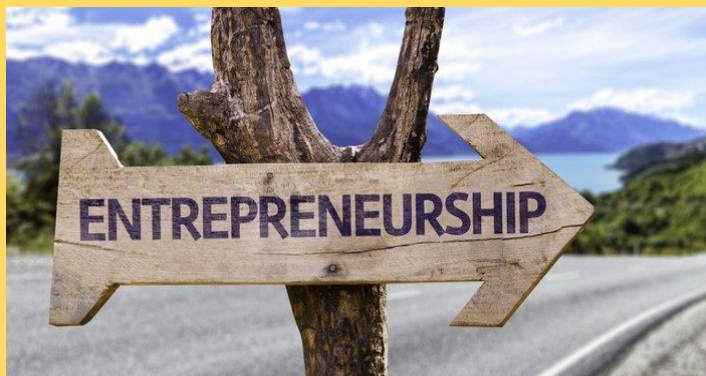


When you contemplate the word startup, one of the first points that come to one's notice is challenges. Challenges occur mostly around money, survival and talent. But if one has to withstand the startup storm and not just survive but succeed, he has to look beyond these 'initial' challenges.

A term that is tossed around is 'cockroach startup', which demands that the company can weather all kinds of pressure, be it external or internal and still do more than just survive. (It is quite relevant to state here that a cockroach lasts for several days' even after its head is cut off).

To accomplish this, it is imperative to view challenges beyond the immediate ones. Start-ups need to plan for long-term impression. Success and survival pivot on several things, the most critical ones being problem identification, planning scalable solutions and tapping the right team in place to accomplish it.

**Address Issue**: If products and services of companies do not report a problem, need or challenge, they may as well shut down.

Rightly said, detecting this is critical too – it has to be something that does not lend itself to going out of business. It has to be something that will always be in demand in some form, shape or size. Fashion, money and food are typical examples of such companies.

**Scale**: Scalability should be viewed at from numerous angles. Is the market large enough? Do we have the caliber to reach this market? Also, is there a possibility for expansion – not just into newer markets; but by way of new product/service offerings as well. This level of forecasting will safeguard that there is a clear roadmap that keeps the long-term well-being of the company in mind.It goes without saying that it will flag a flawless pathway for the company to understand what kind of resources and organisation structure they would need to get there.

**Structure:** Organisational structure and team arrangement are important. This possibly is the most crucial constituent and can make or break dreams which the company has perceived for the market and therefore may make or break itself. Some benchmarks to absolutely tick off while selecting the core team are the aptitude to take risks, readiness to get hands and legs muddy, passion with the foundation the company stands for to further a common goal and not repetitively worry about individual growth and success.

**Building the Right Team:** Searching for people with some or all of these abilities will be a challenge. Waiting it out and employing when you catch them would be the ideal thing to do. Awkwardly, several startups go wrong here. They are either in a hurry to employ and end up employing anyone who slightly fits the bill, or they start forming roles to suit/fit people who they think would be ideal. Problems start here and the administration will end up spending a lot of additional time fixing internal matters when they should rather centre on the customer and to positively influence the customer's life.

**Technology:** The notion of looking beyond the usual startup challenges will be half-finished without examining technology and the part it plays. Technology plays a huge part in innovation. However, flinging technology at every 'problem' and imagining results is an absolute no-no.

It is bossy to see if the customer is ready for the tech revolution. If they are not ready, it's best to move them slowly, so you do not end up annoying them by giving 'cool' solutions that they are neither able to understand nor use.

In a startup environment, if you can't stand the heat get out of the kitchen. A lot of the work is trial and error. If one looks beyond the apparent challenges, there will be that many fewer complications to deal with later. The mantra should be simple – Put your best foot forward. Go out there, be as close to the market and be flexible to make changes on the go. Success will follow.

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# Healthy Beginning of the Day

*Ms. Deepraj Walia*
*Assistant Professor, School of General Education*

Breakfast provides our body with the much-needed energy after a night of fasting. Let's assume that the last meal of the day was two hours before we went to sleep, and if we sleep the recommended seven to eight hours a night, this means a minimum of nine hours of fast. This is exactly why this meal is known as Breakfast i.e., breaking the fast. Skipping breakfast means trying to kick-start the day without any fuel. Imagine starting your car every morning without any petrol in it! Preferably, breakfast should be had within two hours of waking up.

Breakfast helps restore glucose levels in our body, and it is a well-known fact that glucose is crucial for the proper functioning of our brain. It also helps in improving our memory and concentration levels.

Along with energy, the food we consume for breakfast also provides our body with calcium, iron and Vitamin B. Some very crucial proteins, fibre and nutrients are also supplied to our body when we consume breakfast properly. Studies have proven that people who skip breakfast are unable to compensate for this loss of nutrients, irrespective of the fact that they may be consuming a very healthy diet later in the day.

Fruits are a good source of vitamins and minerals and are considered to be a prominent part of our breakfast. It is observed that people who consume fresh fruits and vegetables as a part of their breakfast are less likely to gain weight. On the other hand, breakfast skippers tend to nibble on snacks and junk food leading to weight gain and an unhealthy lifestyle. When you eat breakfast, you naturally begin to taper off your eating later in the day. For weight watchers, it is strongly advised to have 'breakfast like a king, lunch like a prince and dinner like a pauper'.

People complain that they are not hungry in the morning, but if they start eating breakfast, the body adjusts quickly and demands breakfast if it is skipped.

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# B. Voc.: The Degree for Skilling India

*School of General Education*

The biggest challenge facing the country is the shortage of skilled personnel across all sectors of business, industry and trade. This problem could be addressed by introducing a skill based training curriculum to close the gap between education and unemployment. The B. Voc. Program is the outcome of an educational methodology focussing on providing high quality vocational education leading to real world application. It is the culmination of an extended effort to establish a new kind of educational system relevant to an increasingly industrialised environment. The goal of B. Voc. Program is to provide job opportunities to young people by combining academic knowledge with practical application. The industry- inspired curriculum of the B. Voc. Program lays the foundation for a promising career by bridging the demand - supply gap with skilled employees.

The establishment of Bhartiya Skill Development University, the first pure Skill University in the country is a revolutionary step towards empowering the youth through skills education. It is the first of its kind promoting Skill Development through actual practical skills training based on the concept of 'One Machine-One Student'. Integration with work placements and projects is achieved through close partnerships between BSDU and Industries making the students work -place ready. It helps the students in better performance at their jobs as they acquire a great learning experience with an added advantage of earning while they learn. Their skill, industrial exposure and credibility enables them to avail employment opportunities around the globe.

Skill based education is the need of the hour as it could answer India's unemployment crisis. The vocational training of the highest level imparted at BSDU offers students an education second to none in the world.

**B.Voc. Program at BSDU:**

The University Grants Commission (UGC) has launched a scheme on skill development based higher education as part of college/University education, leading to Bachelor of Vocation (B. Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the National Skills Qualifications Framework (NSQF). The B.Voc. program focuses on specific job roles and their National Occupational Standards along with broad based general education. This enables the graduates completing B.Voc. to gain appropriate knowledge and skills thereby aiding them to seek appropriate employment or in becoming entrepreneurs.

**Objectives of the B. Voc Program:**

➢ To provide a judicious mix of skills relating to a profession and an appropriate content of General Education

- To ensure that the students have adequate knowledge and skills, so that they are work- ready at each exit point of the program
- To provide flexibility to the students by means of pre-defined entry and multiple exit points
- To integrate NSQF within the undergraduate level in order to enhance employability of the graduates and meet industry requirements. Such graduates, apart from meeting the needs of the local and national industry are also expected to be equipped to become part of the global workforce
- To provide vertical mobility to students completing 10+2 with vocational subjects

## Level of Awards:
The certification level will lead to Diploma/Advanced Diploma /B.Voc. Degree as given below:

| Award | Duration | Corresponding NSQF level |
|---|---|---|
| Certificate | 6 Months | 4 |
| Diploma | 1 Year | 5 |
| Advanced Diploma | 2 Years | 6 |
| B.Voc. Degree | 3 Years | 7 |

## Curriculum
The curriculum in each of the years of the program is an appropriate blend of general education and skill development components. The focus of general education components is to equip students with relevant knowledge, practice and attitude, so as to become work- ready. The skill development components are relevant to the industries as per their requirements.

The overall design of the skill development component along with the job roles selected are such that it leads to a comprehensive specialization in one or two domains. The curriculum is focused on work-readiness skills in each of the three years. However, adequate attention is given to practical work, on the job training, development of student portfolios, project work and language and communication skills.

After undergoing general education and core skill training, students will be capable of a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting  and applying basic methods, tools materials and information. They will have adequate logical and mathematical skills, and an understanding of social, political and natural environment.  They will also gain valuable communication and presentation skills.

## Distinct Features:
- Students from all streams and at different levels can enter the industry for apprenticeship
- Experience in industry as an apprentice is counted and evaluated by certification at next higher NSQF level
- Credits from apprenticeship are added to the credits from previous qualifications and industrial assignments provided accordingly
- After apprenticeship and certification at next higher NSQF level, the apprentice can go to the University and join at the next level
- Students with formal qualifications such as BA/BSc/BBA/BCA, etc. are also eligible for industrial apprenticeship and can get a certificate at NSQF level 5/6 after a one-year apprenticeship
- Students after 10+2 can get certified at NSQF level 4/5/6 after one/two/three years of apprenticeship respectively
- The system is flexible and allows the students to move between the University and the industry at their own convenience

## Examination and Assessment
The assessment for the general education component is conducted by the University as per prevailing standards and procedures. However, the assessment for the skill development components is focused on practical demonstrations of the skills acquired.

The University has established a credit based assessment and evaluation system   for the B.Voc. program.



BSDU Skill Education Process

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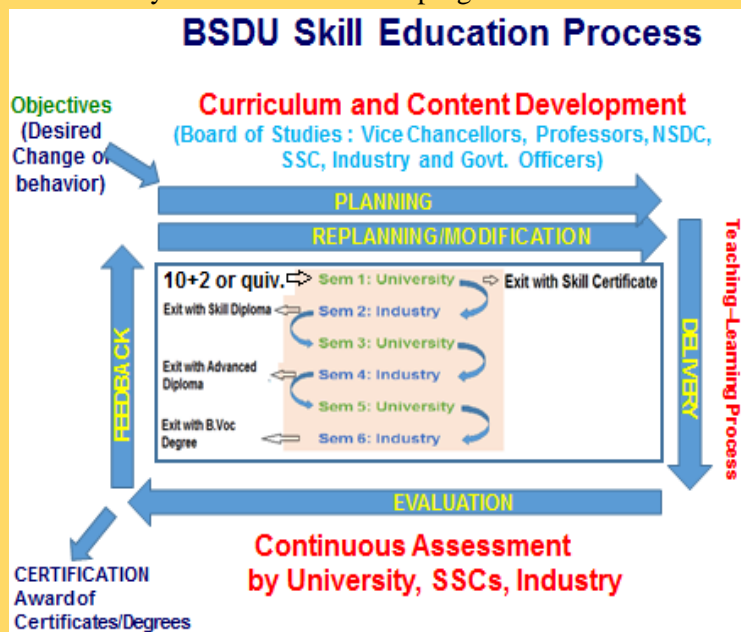
# School of IT/Networking Skills

*Dr. Kumkum Garg*
*Dean, Faculty of Informatics, Photonics & Robotics*

The School of IT & Networking provides training in the field of information storing, processing and communication, using computers. Computers are a part of daily life, from smartphones to laptops, the Internet, medical instruments, lighting technology and in the use and control of robots or machines that can be a substitute for humans, especially in tasks which are considered dangerous for humans.

A Network architect has the skill to work with a company's computer network, using information technology, to make network systems for all employees to use. These networks can include local area networks (LANs), wide area networks (WANs), intranets and extranets. Network complexity can vary depending on the organization and the company may have one dedicated engineer, or many globally connected engineers working together with the Chief Technology Officer.

At present, the School offers a 3-year undergraduate program in Vocational Studies, related to Computer Networking, called B. Voc. IT/(Networking). Exit options are also available to students after one or two years, for a 1-year Diploma or a 2-year Advanced Diploma, respectively, in IT/(Networking). The School of IT/Networking has also introduced a Ph.D. program in the year 2018. A candidate has registered under this program and is pursuing her research in the area of Internet of Things (IoT). The School has proposed to initiate a 2-year M.Voc. program in *Embedded systems and IoT skills* from the academic session 2018-19.

The School has set up many high-end labs for the benefit of students. Besides the Computing Lab, which has 30 desktop computers (intel i3 processors, 4GB RAM, 1TB HDD and 19" monitors) and which caters to the computing needs of all B.Voc students, three more labs have been set up recently, as given below:

- **CISCO Networking Lab**: It consists of Rack mounted routers, L2 and L3 switches, modems, firewalls, wireless devices, Access Points, optical fibre cables, network simulator, etc., for students to have hands-on experience in networking hardware and software.
- **3D Printing Lab:** The lab has 9 3D printers, including 4 of SLA and 5 of FDM type. Materials like ABS, PLA, Nylon, Wood, PETG, etc. can be used with these. Training on these Printers is currently on.

- **R&D Lab:** This lab is used for design and implementation of Embedded Systems and IoT projects, some of which are Water Level Indicator, Cell phone controlled Home Appliance, Voice controlled robotic vehicle, Arduino based digital clock +RH indicator and Edge Follower robot.

The process of setting up two more high-end labs is underway in the School. These are a Robotics Lab and a PCB Design and Manufacturing Lab.

A campus ERP system has been installed at BSDU, to automate the working of all sections of the University, including the Administrative Offices and the Academic Schools. The Dean, Prof. Garg is the Single Point of Contact (SPOC) for the same.

Two **MoU's** have been signed by the School. One is with **Aha3D Innovations, Jaipur** for technical collaboration to set up a lab to train students in the process of 3D Printing, to manufacture 3D printers at BSDU with the help of precision machines available in the School of Manufacturing Skills, and to achieve efficiency in the products and create more innovative products. The other MoU is with **Forsk Technologies Pvt. Ltd., Jaipur**, wherein Forsk will support, as knowledge partner, the deployment of two programs, scheduled to start at BSDU in the next academic year. These are a B.Voc Program in Machine Learning and AI, and an M.Voc program in IoT and Embedded systems.

A three-day **National Conference on Skills Development (NCSD2018)** was organized by the School in March 2018. It was sponsored by Forsk Technologies, Jaipur and Aha3D Innovations Ltd., Jaipur. Two very well attended and successful Half-Day Pre-Conference Workshops were held. These were on 3D Printing Skills and Machine Learning Skills using Python.

Many prominent experts were invited to give key-note addresses during the conference. These included the CEO of Telecom Sector Skill Council, a Professor from IIT Bombay, the Director of the Queensland Skill Consortium of Australia, a former ambassador to Switzerland and Vice Chancellors of many Universities. A Panel Discussion was held on the topic, 'Integration of Apprenticeship with Skills Training'. The distinguished panel included experts from Industry, Academia and the Government.
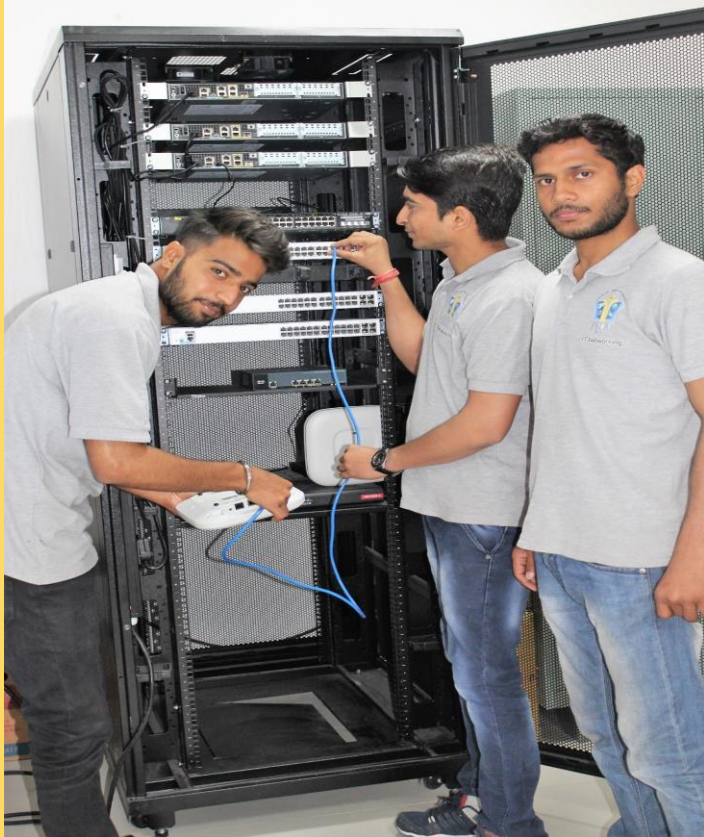
A number of research scholars from Jaipur and other parts of the country including Government officials presented their work on various aspects of life skills and livelihood skills.



**3D Printing lab**



**Solder Paste Printer**



**CISCO Networking Lab**



**Auto Pick & Place Machine          Reflow Soldering Oven**

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# School of Automotive Skills

*Prof. Mohanjit Walia*
*Principal, Faculty of Automotive Skills*

The School of Automotive Skills imparts knowledge, technical skills and hands-on training in automobiles, focusing on four wheelers, both petrol and diesel. The program is designed to introduce the students to the operation of today's complex vehicles by giving them a comprehensive understanding, basic to advanced, of various automotive systems like Transmission, Brakes, Steering and Suspension, Electrical and Electronics, and Engine Performance, etc. Students under this program will acquire the necessary skills to identify and repair mechanical and computer controlled electronic systems on the latest models of automobiles.

At present the School offers a 3-year undergraduate program in Vocational Studies. This B.Voc. program is modular in nature with multiple exit points at Certificate, Diploma, Advanced Diploma and the B.Voc. Degree.

The M.Voc. program is also modular in nature with exit points at Post Graduate Diploma and at the M.Voc. degree. Undergoing the B. Voc. Program in Automotive skills will equip the students with all necessary and essential attributes to service, maintain and overhaul various types of automobiles. This in turn, will make them ready for the huge market of service and maintenance as well as proficient in running their own entrepreneurial venture. The students will be eligible for various positions, starting from entry level in the automobile service sector, of various brands of cars and tractors. Apart from the above opportunities, M.Voc. will provide an opportunity to students to become a skills trainer/teacher in any Skills University in India or abroad. A Ph.D. program has also been introduced in the School, with one student registering for a doctorate degree in the area of Reverse Engineering.

In order to provide the best hands-on training, the School has developed a high-end training facility for delivering hands-on skills to the students. The details are as follows:

## I. Automotive Workshop:

The Automotive Workshop is installed with training equipment based on modern technology highly relevant to the ones which are installed by most of the industry. The workshop is divided into four major sections with single bay of each likewise, Wheel Care Section, Mechanical Section, Body Repair Section & Spray Painting Section. All these sections are installed with equipment such as Two-Post lift, 3D wheel alignment machine, tyre changing machine, wheel balancing machine, dent puller, spot welder, paint booth, paint mixing machine, electrical test bench, multi scan tool, AC recycling machine, head light beam aligner, etc. The workshop is also equipped with high quality tools and trolleys for supporting the training.

## II. Engine Room:

The demo room in the workshop is fitted with necessary tools and equipment to teach the students how to repair and overhaul the engine and gearbox. Students are trained in dismantling and assembling of engines and gearbox. Presently, we have one of both petrol and diesel engines in the room for providing the training.

## III. Aggregate Room:

Apart from training in the workshop, the students are required to learn the basic principles of the working of different automotive components/parts so that they are able to learn and explain the concepts and working of different parts of automobiles. The Lab is installed with cut sections and working models of all major aggregates of an Automobile like engines, gearboxes, MPFI system, CRDi system, Electrical wire harness, Central locking simulator, Exhaust system, Steering & Suspension system, etc.

## IV. Interactive Class Room:

The theory room of Automotive Skills is planned to handle a strength of 36 students. The same classroom is also developed as a measurement lab with all types of measurement instruments like, Vernier calipers, Micrometer, height gauge, snap gauge, ring gauge, surface plate etc. The class is one of its kind with an interactive device which can convert any surface into an interactive surface and has the capacity to access the lectures delivered for future reference.

## Industrial Tie-Ups:

Apart from these labs, for future extension of training facilities, the School has established contact with several equipment manufacturers and OEMs to develop centre of excellence in different domains of Automotive service sectors, like Body Repairs with Car-o-Liner and Cellette, for Spray Painting with Axalta Coating Systems, for industrial partnerships in training with automotive OEMs like Mahindra, Maruti & Honda. The School will be signing MoUs with these companies very shortly which will provide huge benefits to the students in terms of training, internships and placements.

## Course Enhancement:

As an add-on to the existing course, several specializations will be added which the students can undergo based on their choice. The specializations are planned to be added jointly with industry to provide the students an extra edge in that field. The specializations currently available in the school are Automotive Body Repairs & Automotive Spray Painting in collaboration with Axalta Coating Systems. Similarly, for three wheelers, we are most likely to collaborate with Piaggio Italy and Atul Motors.

**Industrial Internships of Students:**

As per the curriculum of B. Voc., students are required to undergo six months of industrial internship organized at different service workshops.

All the students of the School are placed in reputed workshops of Mahindra & Mahindra, Maruti Suzuki, Hyundai etc. located in Jaipur.







**Aggregate Room**

**Automotive Workshops**

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# School of Manufacturing Skills

*Mr. Andy Wild*
*Incharge, School of Manufacturing Skills*

The School of Manufacturing Skills provides in-depth training in the domain of manufacturing: machining, sheet metal and welding activities, assembly (fitting) and maintenance. The program is organized in such a way that the student gets a high level of skills and qualification including a lot of practice, with focus on excellence and autonomy.

There is a growing demand for a qualified B.Voc student, (Manufacturing) in the job market both in India and abroad. The specialization enables the student to work as a supervisor in the domain of manufacturing or quality management, tooling, maintenance & production management and also operate modern machines tools, prepare the work process and define the manufacturing resources.

The support of the experienced Swiss experts and the implementation of the Swiss dual system training concept (school and industry) is a key advantage in getting extensive manufacturing know-how and high level practice, within an environment dedicated to excellence. The close contact with industry is an asset for a good placement.

## The program:

B.Voc program is a 3 year undergraduate program in vocational studies, each year being made of a 6 months study in the School and a 6 months internship (practical work) in selected industries.

- Multiple entry and exit is possible at the end of each year in order to ensure maximum flexibility according to the student's needs.
- At the end of each year, the student must succeed respectively in the following:
  - Diploma (end of 1st year); Advanced Diploma (end of the 2nd year) and B.Voc (end of the 3 year). At the successful completion of the first semester, the student receives a certificate.
- After B.Voc (Manufacturing), the student may extend his studies with the M.Voc and Ph.D. program.

## The Training Content:

- The student is trained in practical modules with theoretical subjects in relation to the practice.
- The student's practice on state of the art equipment with the principle of 'One Student, One Machine' focusing

on manufacturing parts of the highest quality. A strict support and follow-up is ensured by highly qualified trainers.

- In the first semester the students learn the basics of hand-skill training, turning, milling, assembly and measuring tools. Technology courses are given simultaneously.

- In the third semester, after a 6-months internship, some subjects from first semester are reviewed and an in-depth training on CNC machines, programming, CAD-CAM subjects is provided.

- In the fifth semester adapter as per the chosen specialty and project realization is made with the help of the most advanced production machines.

- During all the training programs, elective courses are available. Special workshops, with industry participation, are organized.

## The School Equipment:

- The handskill workshop is equipped with 10 workbenches complete with good condition hand tools, 4 Alzmetall drilling machines, 10 Fehlmann milling and drilling machines, Gedee Weiler lathe machine and cabstand lathe machine, one universal milling machine, notching and polishing machine.

- The milling workshop is equipped with 15 Emco conventional milling machines and 3 surface grinding machines.

- The turning workshop is equipped with 15 Emco conventional lathes.

- The welding and sheet metal shop is equipped with band saw, circular saw, shearing machine, bending machine and the following welding equipment: 1 spot welding, 1 Kennedy welding, one heat treatment oven,15 TIG Adore units, 15 MIG Adore units and a plasma cutting machine.

- The CNC manufacturing shop has 15 workplaces for CNC programming and MasterCAM programming, one CNC engraving machine, one tool setup unit, 4 Emco CNC lathes, 4 Emco CNC milling machines.

- The pneumatic lab is equipped with 6 Pneumatic and Electropneumatic benches with all related equipment.

- A computer room is available with 15 powerful CAD stations, hosting AutoCAD, SolidWorks and MasterCAM software.

- A TechnoLAB (prototyping, research, complex manufacturing, tool making…) is available with one 80 ton injection molding machine, one 3D (CMM) measurement machine, one 5 axis MAZAK CNC milling, one MAZAK CNC turning, one STAR CNC Swiss lathe, one cylindrical grinding machine and one EDM wire cutting machine. An assembly area completes the TechnoLAB.

## Collaboration with industry:

The high level of expertise of the faculty (Swiss experts and Indian trainers) and the reputation of excellence of the school is generating a lot of collaboration projects, requests from the industry and other schools.

- The pedagogic interest, the innovation level and complexity of a project are criteria considered for starting a collaboration project.
- Various MOU's have been signed with partners and several seminars (led by industry specialists or given by our school) are given each semester.



**CNC Milling**



**Injection Moulding Machine**



**Drilling and Milling Machine**

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# School of HVAC & R Skills

*Prof. Mohanjit Walia*
*Principal, School of HVAC & R Skills*

## INTRODUCTION

The School of HVAC & R imparts knowledge, technical skills and hands-on training in the field of refrigeration and air conditioning. The program is designed to introduce the students to the operation of today's HVAC & R system by giving them a comprehensive understanding from basic to advanced, of various systems like Window air conditioning, Room air conditioning, VRV, Ductable etc. Students under this program acquire the necessary skills of installation, commissioning and troubleshooting of HVAC & R systems.

At present, the School offers a 3-year undergraduate program (B. Voc.) in vocational studies. This B. Voc. program is modular in nature with multiple exit points at Certificate, Diploma, Advanced Diploma and the B. Voc. Degree. The School also offers an M. Voc. program which is also modular in nature with exit points at Post Graduate Diploma and M. Voc. degree.

Undergoing the B. Voc. Program in HVAC & R equips the students with all the necessary and essential attributes to install, service, maintain and assemble different types of HVAC & R systems. This in turn makes them ready for the huge market of service and maintenance as well as proficient in running their own entrepreneurial ventures. The students will be able to secure various positions, starting from entry level in the HVAC & R system companies like Daikin, Voltas, LG, Carrier, and Blue Star. Apart from the above, M. Voc. will provide an opportunity to students to become a skills trainer/teacher in any Skills University, in India or abroad. A Ph.D. program has also been introduced in the School for research work in the field of HVAC & R.

In order to provide the best hands-on training, the school has developed a high-end training/laboratory facility for delivering skills to the students.

A well-equipped Center of Excellence for air conditioning training facility is established by Daikin Air-conditioning India Pvt. Ltd at BSDU. In addition, different types of Refrigeration and Air-conditioning training, tests rigs are available for imparting technical skills. The details are as follows:

- Air conditioning unit- Split
- Air conditioning unit- Cassette
- Air conditioning unit- VRV
- Air conditioning unit- Ductable
- All components of Air Conditioners
- Tools required to assemble, install and repair air-conditioners
- Central air-conditioning machine room, air handling units, ducting and control systems
- Refrigeration test rig (0.3TR)
- Air conditioning test rig (0.5 TR)
- Cooling Tower test rig
- Vapour Absorption Refrigeration test rig
- Recirculation air conditioning testrig (0.3 TR)
- Refrigeration fault simulator
- Mechanical Heat Pump trainer
- Chilling Plant test rig
- Cascade Refrigeration test rig
- Multi evaporator Refrigeration test rig
- Cold storage test rig (+5°C to +10°C)
- Refrigeration charging and evacuation kit

## HVAC & R Lab:

At BSDU an HVAC & R lab has been developed for assembly and disassembly of various refrigeration and air conditioning systems like Split air conditioner, domestic refrigerator, VRV, and Duct.

## Industry Internship:

In order to impart high-quality skills training for students, an MoU has been signed by BSDU with Daikin Air-conditioning, India Private Ltd. They also provide a training facility for faculty, trainers, and students. The course curriculum has also been designed according to industry relevance. The school aims to set up more Centres of Excellence in the specified field through contacting various industries like LG, Blue Star, Carrier, Zamil etc.

## Course Enhancement:

As an add-on to the existing course, several specializations will be added which the students can undergo based on their choice. The specializations are planned to be added jointly with industry to provide them an extra edge in that field. The specializations currently available are in duct installation designing, cold storage etc in B. Voc., Energy conservation HVAC & R system Desiccant solid and Liquid Technology Food Processing Preservation and Transport are specializations offered in M. Voc. For enhancement in the course, the School has collaborated with industries like Daikin, LG, Zamil etc.

## ASHRAE STUDENT CHAPTER



ASHRAE student chapter has been created by the faculty, trainers and students of School of HVAC & R Skills at Bhartiya Skill Development University, Jaipur. This provides the students with latest information, technology, products and research articles in the field of Heating, Ventilation, Air conditioning and refrigeration.

## Training and Workshop





**Daikin Centre of Excellence**

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# School of Electrical Skills

*Prof. (Dr.) S.K. Jhajharia*
*Principal, School of Electrical Skills*

## Introduction

The School of Electrical Skills came into existence in 2017. It aims to equip students with extensive knowledge of electrical legislation, codes and standards of practice. The students are trained in installing, maintaining and testing electrical systems and equipment in domestic, commercial and industrial environments. On graduating, they will possess an in-depth knowledge of the safety procedures for the project work and maintenance of industrial plants. The School trains students with expertise and complete know-how, based on the Swiss dual system of training, combining theory and on the job training.

## Objectives

- To provide Quality Training in electrical skills
- To integrate theory and on the job training to suit the Indian industries
- To meet the growing requirements of skilled manpower
- To conform to the highest standards of Professional Ethics

## Programs offered

- Certificate (6 months)
- Diploma (I year)
- Advanced Diploma (2 years)
- B.Voc (3 years)

## Eligibility

- 10+2 PCM or ITI after 10th std. Polytechnic Diploma will be considered as equivalent to 10+2.

## Admission

- Admission will be through an Entrance Exam or based on the merit of the qualifying examination.

The B.Voc program is modular in nature with multiple exit points at Certificate, Diploma, Advanced Diploma and B.Voc.

## Career Opportunities

Electrical skills represent over 25% of all available jobs in India and 30 % of all government jobs are in the Electrical skills sector.

A person with electrical skills can be employed in Computer, Electronics & Communication, Instrumentation and Control, Robotics, Mechanical industry, etc.

- ❖ Other than conventional Electrical jobs like power generation, distribution, transmission, manufacturing and utility sectors, skilled personnel are well positioned to

address a variety of crucial issues being faced by society today.

- ❖ Job opportunities exist for electrical specialists both in the private and public sector like railways, civil-aviation, electricity board and utility companies, electrical design and consultancy firms and all types of manufacturing industries.
- ❖ Companies like ABB, Bajaj International Private Ltd, Crompton Greaves Limited, Siemens Ltd, Reliance Power Ltd, Oil and Natural Gas Corporation (ONGC), Bharat Heavy Electricals Limited (BHEL), Steel Authority of India Limited (SAIL), Coal India Limited (CIL), Power Grid Corporation of India Limited (PGCIL), Centre for Electronics Design and Technology and Wipro Lighting, are the biggest employers hiring electrical specialists.

## Infrastructure and Equipment

The Electrical Skill Labs are well-equipped with all required instruments and state of the art machines comparable to those in the industry. These include Wheatstone Bridges, single and three phase transformers, single and three phase induction machines, synchronous machines, various DC machines, AC-DC digital drives, PLCs, advanced electrical machine trainer kits and digital IC trainer kits, etc. Additional hardware includes power supplies with variable and fixed ac/dc, resistive, inductive and capacitive loads, rheostats, changeover switches, measurement meters such as digital multi-meter, wattmeter, tachometer etc. There are also cut section models available for several machines.



Industrial PLC & SCADA Trainer Kit



Power Transmission Trainer Kit



Electrical Machine Trainer Kit



**Solar Technology Trainer Kit**

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# School of Healthcare and Paramedic Skills

*Mrs. Claudia Ritschard*
*Project Manager, MNA Program*

## Introduction

The School follows the Swiss dual system and applies modern teaching methods of Problem based learning (PBL). It is intended to promote the acquisition of flexibly usable knowledge, the development of interdisciplinary skills, and a better problem-solving capability. Social competence and teamwork are key qualifications that can be acquired within the scope of this training. The program is guided by highly specialized Swiss Tutors.

The school provides a new program in Healthcare viz. Medical Nursing Assistant (MNA). The MNA will gain elementary theoretical knowledge needed for practical assistance of the nurse, diverse practical know-how and professional awareness. As the education is competence based, the students will have the ability to work independently in a hospital ward after completing the course.

## Objectives of the School:

➢ To make available highly motivated, dedicated and profound educated auxiliary staff in hospitals and nursing homes, with professional awareness and behaviour

➢ To train MNAs to create and cultivate a respectful professional relationship with the patient and whose behaviour aligns with the patients' needs

## Programs offered
- Certificate (6 months)
- Diploma (I year)

## Eligibility

- 10th or ITI after 10th std.
- Polytechnic Diploma will be considered as equivalent to 10th .

## Career Opportunities

The MNA's can be placed as care giving assistants for patients in institutions like Hospitals and Nursing Homes by performing medical technical procedures and supporting the physical, social and emotional well-being of all patients.

## Infrastructure and Equipment

Bed Side Locker, Crash Cart Trolley, Soiled Linen Trolley, Linen Change Trolley, Bed Side Screen, Bed Side Table, Foot Step Double, Stretcher Trolley, Patient Trolley, Saline Stand, Visitor Stool, Plain Bed General on Wheel, Semi Fowler Bed Gen On Wheel, Medical Equipment, Pharmacy, Excretion Process, Inhalation, Blood Withdrawal, Orthopedic Aids, CPR Material, Dummy for patients, Adult Manikin Faces, Dummy of Organs, Human Skeleton Structure etc. in addition to one practical skills training lab, Health Care office, storage room and women's changing room.



**Skills Lab**

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# School of Carpenter Skills

*Mr. Narendra Rathore*
*Incharge, School of Carpenter Skills*

## Introduction

Carpentry is practiced as a skill all over the world. There is a dire need to give it a professional touch so that one can have qualified professionals in this area. The prevalent skills in carpentry are converted into qualification packs, hands-on experience in labs and industries so that one can become a qualified carpenter, cabinet maker and entrepreneur at the end of the program. The salient features of the program are hand skills, fittings, designing, personality development entrepreneurship and industrial entrepreneurship. Advanced standard machinery, CAD – 3D drawing and basics of CNCs are also taught.

The School stimulates skill development in cabinet making and related woodcraft with a focus on imparting quality training.

### ❖ Objectives of the Program are to:

- train students to *National Skill Qualification Framework* level 7 in at least one job role/profile in the field of Carpentry & woodwork industry
- train students for multiple skill sets under the domain of woodwork like Solid wood, Assembly, Panels, Modular Furniture design
- enable students to supervise the various machining operations in any woodwork industry
- train and equip students with knowledge and understanding to start his/her own enterprise in Carpentry
- enable students to appear for competitive exams in any Government sector such as UPSC, Indian Defense Services, Railways and other PSU's

## Eligibility

- 10+2 or ITI after 10th std.
- Polytechnic Diploma will be considered as equivalent to 10+2.

## Career Opportunities

Carpentry as a skill is needed in every walk of life, be it home, industry, construction etc. Wood work is a must everywhere and all through the ages carpentry is practiced as a skill. The program enables the students to master carpenter skills in a professional manner so that they can become effective cabinet makers, furniture makers, designers, maintenance managers and entrepreneurs. Futuristic view may be that carpentry skills can be extended to plastic. Carpentry automatically promotes entrepreneurship and the training is aimed towards promoting entrepreneurial skills. Job opportunities exist for carpenters in Cabinet making, furniture, woodcraft and design, viz., shuttering carpenter foremen, shuttering carpenter, shuttering officer and shuttering carpenter maintenance. Carpenters can also be suitably employed in leading construction companies.

## *New programs:  M.Voc. program:*

- It is  proposed to begin a 2-year M.Voc. Program in Carpenter skills from the academic session 2018-19.
- PG Diploma (1 year), M.Voc. (2 Years)

## New Labs started:

- Training center for Hand Skills, Standard Machines, Assembly, CNC Machines & Carpentry Design





**Carpenter Skills Lab**
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**Campus View**

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