Applications are invited from the eligible candidates for the following posts on the prescribed form (along with detailed qualifications, experience required & other relevant information) obtainable from the office of Registrar (Sr. No.1 to 16, 18 & 23), Director of Extension Education (for Sr. No.17&19), Chief Engineer (for Sr. No. 20), Estate Officer (for Sr. No.21) and Dean, College of Community Science(for Sr. No.22)on any working day from 10.00 a.m. to 4.00 p.m. Last date of receipt of applications will be 15.04.2020.

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**Posts at Sr. No.1-3 are** tenurial post for a term of four years

For post at Sr. No.3, 16 & 18shall be co-terminus with the scheme in which these are provided.

For posts at Sr. No. 4-16 only short-listed candidates will be called for interview.

For the posts where written/practical/skill test is prescribed, all applicants for that post will be provisionally permitted to appear in the same. The candidate will himself/herself be responsible for meeting the minimum eligibility qualifications and other conditions. Applications of only those candidates will be processed further for appointment who qualify the written test as well as meet the minimum eligibility qualifications and other conditions.

The corrigendum/addendum, if any, will be issued on our website ([www.pau.edu](http://www.pau.edu)) only.

For more details regarding availability of application forms, qualifications, experience, pay scales* and other terms and conditions, candidates are advised to visit PAU website ([www.pau.edu](http://www.pau.edu)).

*Pay scales and other service conditions for the above posts wherever applicable will be governed as per Punjab Government's notification No.7/204/2012-4FP1/60 dated 15.1.2015 and circular No.7/204/2012-4FP1/66 dated 15.1.2015 and any other instructions issued by Punjab Government from time to time in this regard.*
1. Comptroller (For a term of four years) in the pay scale of Rs.37400-67000+GP Rs.10000+Rs.2000/- p.m. Special Allowance and rent free accommodation.

(A)

i) Graduate.

ii) Must have passed S.A.S. Examination held by the Comptroller and Auditor General of India/State Finance Department or Higher Standard Departmental Examination of the PAU.

iii) Must have 9 years experience in a supervisory capacity in financial management/administration out of which he/she must have 4 years experience of Accounts Officer/Deputy Registrar or equivalent in Govt./Public Sector preferably in a University.

iv) Matric level certificate of Punjabi language. (If not, the candidate is required to pass the same within one year of appointment).

OR

(B)

i) Graduate with second division and Chartered Accountant with 50% marks having 5 years experience in the field of Financial Management in Govt./Public/Private sector. In case of Private Sector, the experience should be in Private Limited company having a minimum annual turnover of Rs.50.00 crore.

ii) Matric level certificate of Punjabi language. (If not, the candidate is required to pass the same within one year of appointment).
2. **Additional Director Communication (For a term of four years) in the scale of Rs.37400-67000 + AGPRs.10,000/- p.m. plus Rs.800/- p.m. special allowance.**

**Essential:**

i) Atleast second division at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.00 at Master’s level.

ii) Ph.D. in any branch of Agriculture/Journalism/ Mass Communication/ Journalism and Mass Communication /Languages/Social Sciences. However, candidate(s) with Master’s degree in above subjects having outstanding contributions can also be considered.

iii) 12 years’ experience in the relevant field in an institution/ organization for the candidates holding Ph.D. degree. For candidate(s) with Master’s degree, the experience required is 15 years. Out of the total experience, at least five years must be at Professor level or holding a senior managerial position. Administrative experience, leadership, ability and capacity to organize and supervise the work of others.

iv) Matric level certificate of Punjabi language from Punjab School Education Board or any other recognized Board (as first or second language). (If not, the candidate is required to pass the same within one year of appointment).

**Desirable:**

Substantial contribution in Agricultural Communication/ Journalism/Public Relations supported by evidence.

**Job Responsibilities:**

i) To plan, organize and direct overall communication strategies and public information activities, and implement programmes for dissemination of technologies developed by the University.

ii) To coordinate/provide logistical support in organizing local, national and international events primarily aimed at raising the visibility of the University.

iii) To perform such other duties as entrusted from time to time.
3. Deputy Director (Trg.) (at outstation) (For a term of four years) in the pay scale of Rs. 37400-67000+AGP Rs. 9000/- p.m.

   i). B.Sc. (Agri.)/B.Sc. (Hort.)/B.Sc. (Forestry)/B.Sc.(Med.)/B.S.(Hons.).
   ii). Ph.D. degree in any branch of Agriculture and allied science/discipline.
   iii). At least 60% marks at Bachelor level and 65% marks or OCPA of 6.50 out of 10.00 at Master’s level.
   iv). Eight Years’ experience in teaching/research/extension education in the relevant area at the level of Assistant Professor or equivalent. (The period spent in obtaining Ph.D. degree while in service will not be counted towards experience for recruitment).
   v). Substantial contributions to research/extension and scholarship as evidenced by the quality of research/extension papers published. The candidate has published up to 4 research papers with cumulative NAAS rating not less than 12 and 16 good quality extension articles.
   vi). Matric level certificate of Punjabi language from Punjab School Education Board or any other equivalent (if not, the candidate is required to pass the same within one year of appointment).

Job Responsibilities:

   i) To undertake extension/research/teaching activities.
   ii) To take initiative for developing research projects to obtain funding.
   iii) Any other duty that may be assigned from time to time.

Note: The appointment to this post shall be co-terminus with the scheme, in which the post is provided.
4. Assistant Professor (Education) in the pay scale of Rs. 15600-39100+AGP Rs. 6000/- p.m.

i). B.Sc.(Agriculture)/B.Sc (Horticulture).

ii). Master's degree in Plant Breeding & Genetics/Agronomy/Horticulture.

iii). At least 60% marks at Bachelor's level and 65% marks or OCPA of 6.50 out of 10.00 at Master's level.

iv). Must have qualified National Eligibility Test (NET) in any of the above mentioned disciplines at serial number ii) conducted by ICAR/UGC/CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Clarivate Analytics (CA) impact factor.

v). Matric level certificate of Punjabi language from Punjab School Education Board or any other recognized Board (as first or second language). (If not, the candidate is required to pass the same within one year of appointment).

Note 1: A candidate, who does not possess Master's degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master's level, shall be eligible for the post.

Note 2: The candidate holding Doctorate degree in the relevant subject required at Master's level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

- The candidate completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted from NET, and

- The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0 or with Clarivate Analytics (CA) impact factor.

OR

- The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5 or with Clarivate Analytics (CA) impact factor.

Note 3: In case of non-NAAS rated papers, Clarivate Analytics (CA) impact factor journals will be considered as NAAS rated with rating of 6+CA impact factor.

Note 4: Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

Note 5: The candidate should have cleared 4 years degree programme at Graduation/Bachelor's level.

Job Requirements:

i) To undertake teaching/ research/extension education activities.

ii) To take initiative for developing research projects to obtain funding.

iii) Any other duty that may be assigned from time to time.
5. Maize Breeder in the pay scale of Rs. 15600-39100+AGP Rs. 6000/- p.m.

i). B.Sc.(Agri.)/B.Sc.(Hort.)/B.Sc.(Forestry)/B.Sc.(Medical)/B.Sc.(Biotech.)

ii). Master’s degree in Plant Breeding/Plant Breeding & Genetics/Genetics

iii). At least 60% marks at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.0 at Master’s level.

iv). Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/ UGC/ CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Thomson Reuter’s impact factor.

v). Matric level certificate of Punjabi language of Punjab School Education Board or any other recognized Board (as first or second language) (if not, the candidate is required to pass the same within one year of appointment).

Desirable:-  
Experience in hybridization, hybrid breeding and hybrid seed production

Note 1:  
A candidate, who does not possess Master’s degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master’s level, shall be eligible for the post.

Note 2:  
The candidate holding Doctorate degree in the relevant subject required at Master’s level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

- The candidate completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted from NET, and

- The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0.

OR

- The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5.

Note 3:  
In case of non-NAAS rated papers, Thomson Reuters (TR) impact factor journals will be considered as NAAS rated with rating of 6+TR impact factor.

Note 4:  
Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

Note 5:  
The candidate should have cleared 4 years degree programme at Graduation/Bachelor’s level except degree in Basic Science and Social Science Discipline.

- The candidates who have completed Bachelor degree in 3 years should have cleared their deficiency courses in relevant subjects Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

Job Responsibilities:

i) To undertake Research/Teaching/ extension education activities.

ii) To take initiative for developing research projects and to obtain funding.

iii) Any other duty that may be assigned from time to time.
6. Pulse Breeder in the pay scale of Rs. 15600-39100+AGP of Rs. 6000/- p.m.
   i). B.Sc.(Agri.)/B.Sc.(Horti)/B.Sc.(Forestry)/B.Sc.(Biotechnology)/B.Tech(Biotechnology)/B.Sc (Med.).
   ii). Master’s degree in Plant Breeding/Plant Breeding& Genetics/ Genetics (Crop Plants).
   iii). At least 60% marks at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.0 at Master’s level.
   iv). Must have qualified National Eligibility Test (NET) in any of the above mentioned
disciplines mentioned at Sr. No. ii) conducted by ICAR/UGC/CSIR along with one
publication in NAAS (National Academy of Agricultural Sciences, New Delhi)
rated refereed journal and equivalent with at least 4.5 NAAS rating or with
Clarivate Analytics (CA) impact factor.
   v). Matric level certificate of Punjabi language from Punjab School Education
Board or any other recognized Board (as first or second language). If not, the
candidate is required to pass the same within one year of appointment.

Note 1: A candidate, who does not possess Master’s degree in Plant Breeding/Plant
Breeding & Genetics/ Genetics (Crop Plants) but possesses Ph.D. degree in
these disciplines, shall be eligible for the post.

Note 2: The candidate holding Doctorate degree in Plant Breeding/Plant Breeding &
Genetics/ Genetics (Crop Plants) required at Master’s level shall be exempted
from passing NET provided, it has been done with course work as prescribed by
the UGC regulations 2009
   OR
   - The candidate completed Ph.D without course work from among 500 top ranking
   foreign Universities of the world shall be exempted from NET, and
   - The candidate has minimum 2 research publications having cumulative NAAS
   rating not less than 10.0 or with Clarivate Analytics (CA) impact factor.
   OR
   - The candidate has minimum 3 research papers, each with at least NAAS rating of
   4.5 or with Clarivate Analytics (CA) impact factor.

Note 3: In case of non-NAAS rated papers, Clarivate Analytics (CA) impact factor
journals will be considered as NAAS rated with rating of 6+CA impact factor.

Note 4: Only those research papers will be considered that have been published or
accepted for publications by the last date of submission of application.

Note 5: 
   - The candidate should have cleared 4 years degree programme at Graduation/
Bachelor’s level except degrees in Basic Sciences.
   - The candidate who have completed Bachelor degree in 3 years should have
cleared their deficiency courses in relevant subjects of Bachelor’s degree during
their Master’s degree or should have completed one year duration
Hons./Bridged/special programme etc.

Job Responsibilities:
   i) To undertake Research/Teaching/Extension education activities.
   ii) To take initiative for developing research projects and to obtain funding.
   iii) Any other duty that may be assigned from time to time.
7. Vegetable Breeder in the pay scale of Rs. 15600-39100+AGP Rs. 6000/- p.m.

i). B.Sc.(Agri.)/B.Sc (Hort.)/B.Sc (Forestry)/B.Sc/B.Tech (Biotech).

ii). Master’s degree in Vegetable Crops/Vegetable Science/Horticulture (Vegetable)/Olericulture.

iii). Atleast 60% marks at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.00 at Master’s level.

iv). Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/UGC/CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with atleast 4.5 NAAS rating or with Thomson Reuter’s impact factor.

v). Matric level certificate of Punjabi language of Punjab School Education Board or any other recognized Board (as first or second language) (If not, the candidate is required to pass the same within one year of appointment).

Note 1: A candidate, who does not possess Master’s degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master’s level, shall be eligible for the post.

Note 2: The candidate holding Doctorate degree in the relevant subject required at Master’s level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

- The candidate completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted from NET, and

- The candidate has minimum 2 full length publications having cumulative NAAS rating not less than 10.0.

OR

- The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5.

Note 3: In case of non-NAAS rated papers, Thomson Reuters (TR) impact factor journals will be considered as NAAS rated with rating of 6+TR impact factor.

Note 4: Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

Note 5: The candidate should have cleared 4 years degree programme at Graduation/Bachelor’s level except degree in Basic Science and Social Science Discipline.

- The candidates who have completed Bachelor degree in 3 years should have cleared their deficiency courses in relevant subjects Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

Job Responsibilities:

i) To undertake research/ teaching/extension education activities.

ii) To take initiative for developing research projects to obtain funding.

iii) Any other duty that may be assigned from time to time.
8. **Assistant Professor (Soil Science) in the pay scale of Rs. 15600-39100+AGPRs. 6000/- p.m.**

   i) B.Sc. (Agri.)/B.Sc. (Hort.)/B.Sc (Forestry)/B.Sc.  
   ii) Master’s degree in Soil Science.  
   iii) At least 60% marks at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.0 at Master’s level.  
   iv) Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/ UGC/ CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Thomson Reuter’s impact factor.  
   v) Matric level certificate of Punjabi language of Punjab School Education Board or any other recognized Board (as first or second language) (if not, the candidate is required to pass the same within one year of appointment).

**Note 1:** A candidate, who does not possess Master’s degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master’s level, shall be eligible for the post.

**Note 2:** The candidate holding Doctorate degree in the relevant subject required at Master’s level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

   - The candidate having completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted form NET, and
   - The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0.

   OR

   - The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5.

**Note 3:** In case of non-NAAS rated papers, Thomsan Reuters (TR) Impact factor journals will be considered as NAAS rated with rating of 6+TR impact factor.

**Note 4:** Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

**Note 5:** The candidate should have cleared 4 years degree programme at Graduation/Bachelor’s level except degree in Basic Science & Social Science discipline.

   - The candidate who have completed B.Sc in 3 years should have cleared their deficiency courses in relevant subjects of Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

**Job Responsibilities:**

   i) To undertake teaching/research/extension education activities.  
   ii) To take initiatives for developing research projects and to obtain funding.  
   iii) Any other duty that may be assigned from time to time.
9. **Assistant Professor (Biochemistry)** in the pay scale of Rs. 15600-39100+AGP Rs.6000/- p.m.

i). B.Sc.(Medical)/B.Sc. (Hons.) with any Biological Science/B.Sc (Biochemistry)/B.Sc.(Agri.)/ B.Sc (Agri) (Hons)/B.Sc (Biotechnology) (Hons)/ B.Sc (Biotech)/B.Sc (Hort.)B.Sc (Forestry)/B.Sc (Food Tech)/ B.Tech (Food Technology).

ii). Master's degree in Biochemistry.

iii). Atleast 60% marks at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.00 at Master’s level.

iv). Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/UGC/CSIR with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with atleast 4.5 NAAS rating or with Thomson Reuter’s impact factor.

v). Matric level certificate of Punjabi language of Punjab School Education Board or any other recognized Board (as first or second language) (If not, the candidate is required to pass the same within one year of appointment).

**Note 1:** A candidate, who does not possess Master’s degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master’s level, shall be eligible for the post.

**Note 2:** The candidate holding Doctorate degree in the relevant subject required at Master’s level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

OR

- The candidate completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted from NET, and

- The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0.

OR

- The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5.

**Note 3:** In case of non-NAAS rated papers, Thomson Reuters (TR) impact factor journals will be considered as NAAS rated with rating of 6+TR impact factor.

**Note 4:** Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

**Note 5:** The candidate should have cleared 4 years degree programme at Graduation/Bachelor's level except degree in Basic Science and Social Science Discipline.

- The candidates who have completed Bachelor degree in 3 years should have cleared their deficiency courses in relevant subject’s Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

**Job Requirements:**

i). To undertake teaching/research/extension education activities.

ii). To take initiative for developing research projects to obtain funding.

iii). Any other duty that may be assigned from time to time.
10. Assistant Professor (Mathematics) in the pay scale of Rs.15600-39100+AGP Rs.6000/- p.m.

i) B.Sc./B.A. with Mathematics.

ii) Master's degree in Mathematics.

iii) Atleast 60% marks at Bachelor's level and 65% marks or OCPA of 6.50 out of 10.00 at Master's level.

iv) Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/UGC/CSIR with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with atleast 4.5 NAAS rating or with Thomson Reuter's impact factor.

v) Matric level certificate of Punjabi language of Punjab School Education Board or any other recognized Board (as first or second language) (If not, the candidate is required to pass the same within one year of appointment).

Note 1: A candidate who does not possess Master's degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master's level, shall be eligible for the post.

Note 2: The candidate holding Doctorate degree in the relevant subject required at Master's level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

- The candidate completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted from NET, and

- The candidate has minimum 2 full length publications having cumulative NAAS rating not less than 10.0

OR

- The candidate has minimum three research papers, each with atleast 4.5 NAAS rating

Note 3: In case of non-NAAS rated papers, Thomson Reuters (TR) impact factor journals will be considered as NAAS rated with rating of 6+ TR impact factor.

Note 4: Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

Job Responsibilities:

1. To undertake teaching/research/extension education activities.
2. To take initiative for developing research projects and to obtain funding.
3. Any other duty that may be assigned from time to time.
11. Assistant Professor (Mechanical Engineering) in the pay scale of Rs. 15600-39100+AGP Rs. 6000/- p.m.

i) Bachelor's degree in Mechanical Engineering.
ii) Master's degree in Mechanical Engineering with specialization in Machine Design.
iii) At least 60% marks at Bachelor's level and 65% marks or OCPA of 6.50 out of 10.0 at Master's level.
iv) Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/UGC/CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Clarivate Analytics Impact factor.
v) Matric level certificate of Punjabi language from Punjab School Education Board (as first or second language) (if not, the candidate is required to pass the same within one year of appointment).

Note 1: A candidate, who does not possess Master’s degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master’s level, shall be eligible for the post.

Note 2: The candidate holding Doctorate degree in the relevant subject required at Master’s level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

OR

- The candidate having completed Ph.D without course work from among 500 top ranked Universities of the world shall be exempted from NET, and

- The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0 rating (highest NAAS rating of the journal(s) during the last 5 years to be taken)

OR

The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5 rating (highest NAAS rating of the journal(s) during the last 5 years to be taken)

Note 3: In case of non-NAAS rated papers Clarivate Analytics (CA) Impact Factor journals will be considered as NAAS rated with rating of 6+ CA impact factor.

Note 4: Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

Note 5: The condition of having qualified National Eligibility Test (NET) at Sr. No. (iv) will be relax-able in the subject of Mechanical Engineering or related subjects.

Note 6: The candidate should have cleared 4 years degree programme at Graduation/Bachelor's level.

- The candidate who have completed Bachelor degree in 3 years should have cleared their deficiency course in relevant subjects of bachelor's degree during their Master's degree or should have completed one year duration Hons./Bridged/special programme etc.

Job Requirements:

i) To undertake teaching/research/extension education activities.
ii) To take initiative for developing research projects to obtain funding.
iii) Any other duty that may be assigned from time to time.
12. **Scientist (Soil & Water Engineering)** in the pay scale of Rs. 15600-39100+AGP of Rs. 6000/- p.m.

   i) Bachelor degree in Agril. Engg./Civil Engg.

   ii) Master's degree in Soil & Water Engineering.

   iii) At least 60% marks at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.0 at Master’s level.

   iv) Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/UGC/CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Thomson Reuter’s impact factor.

   v) Matric level certificate of Punjabi language of Punjab School Education Board or any other recognized Board (as first or second language) (if not, the candidate is required to pass the same within one year of appointment).

**Note 1:** A candidate, who does not possess Master's degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master's level, shall be eligible for the post.

**Note 2:** The candidate holding Doctorate degree in the relevant subject required at Master’s level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

   - The candidate completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted form NET, and

   - The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0.

   **OR**

   - The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5.

**Note 3:** In case of non-NAAS rated papers, Thomson Reuters (TR) impact factor journals will be considered as NAAS rated with rating of 6+TR impact factor.

**Note 4:** Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

**Note 5:** The candidate should have cleared 4 years degree programme at Graduation/Bachelor Level.

   - The candidates who have completed Bachelor degree in 3 years should have cleared their deficiency courses in relevant subjects of Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

**Job Responsibilities:**

   i) To undertake Research/Teaching/Extension education activities.

   ii) To take initiative for developing research projects and to obtain funding.

   iii) Any other duty that may be assigned from time to time.
13. **Scientist (Animal Science)** in the pay scale Rs. 15600-39100+AGP Rs. 6000/-p.m.

   i) B.Sc(Agri.)/B.Sc(Biochemistry)/B.Sc(Medical)/B.V.Sc./B.V.Sc. &AN(Bachelor in Veterinary Science & Animal Nutrition).

   ii) M.V.Sc/M.Sc (Animal Nutrition).

   iii) At least 60% marks at Bachelor's level and 65% marks or OCPA of 6.50 out of 10.0 at Master's level.

   iv) Must have qualified National Eligibility Test (NET) in any of the above mentioned discipline at Master's level conducted by ASRB/ UGC/ CSIR along with one publication in NAAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Thomson Reuter's impact factor.

   v) Matric level certificate of Punjabi language of Punjab School Education Board or any other recognized Board (as first or second language) (if not, the candidate is required to pass the same within one year of appointment).

**Note 1:** A candidate, who does not possess Master's degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master's level, shall be eligible for the post.

**Note 2:** The candidate holding Doctorate degree in the relevant subject required at Master's level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009 OR

   - The candidate having completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted form NET, and

   - The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0.

OR

   - The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5.

**Note 3:** In case of non-NAAS rated papers, Thomson Reuters (TR) Impact factor journals will be considered as NAAS rated with rating of 6+TR impact factor.

**Note 4:** Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

**Note 5:** The candidate should have cleared 4 years degree programme at Graduation/Bachelor’s level.

   - The candidate who have completed B.Sc in 3 years should have cleared their deficiency courses in relevant subjects of Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

**Job Responsibilities:**

   i) To undertake research/teaching/extension education activities.

   ii) To take initiatives for developing research projects and to obtain funding.

   iii) Any other duty that may be assigned from time to time.
14. Assistant Professor (Animal Science) in the pay scale of Rs.15600-39100+AGP of Rs.6000/- p.m.
   i) B.V.Sc/B.V.Sc& A.H./B.Sc (Agri)
   iii) At least 60% marks at Bachelor's level and 65% marks or OCPA of 6.50 out of 10.00 at Master's level.
   iv) Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/UGC/CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Thomson Reuter’s impact factor.
   v) Must have passed Matric level certificate of Punjabi language from Punjab School Education Board or any other recognized Board (as first or second language).

Note 1: A candidate, who does not possess Master’s degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master’s level, shall be eligible for the post.

Note 2: The candidate holding Doctorate degree in the relevant subject required at Master’ level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009
   OR
   - The candidate having completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted form NET, and
   - The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0.
   OR
   - The candidate has minimum 3 research papers, each with atleast NAAS rating of 4.5.

Note 3: In case of non-NAAS rated papers, Thomson Reuters (TR) impact factor journals will be considered as NAAS rated with rating of 6+TR impact factor.

Note 4: Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

Note 5: The candidate should have cleared 4 years degree programme at Graduation/BachelorLevel except degrees in Basic Science & Social Science discipline.
   - The candidates who completed Bachelor degree in 3 years should have cleared their deficiency courses in relevant subjects Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

Job Responsibilities:

   i) To undertake Extension Education/Research/Teaching activities.
   ii) To take initiative for developing projects and to obtain funding.
   iii) Any other duty that may be assigned from time to time.
15. **Plant Breeder (Outstation)** in the pay scale of Rs. 15600-39100+AGP of Rs. 6000/- p.m.

i). B.Sc.(Agri.)/B.Sc.(Horti)/B.Sc.(Forestry)/B.Sc.(Biotechnology)/B.Tech (Biotechnology)/ B.Sc (Med.).

ii). Master's degree in Plant Breeding/Plant Breeding & Genetics/ Genetics (Crop Plants).

iii). At least 60% marks at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.0 at Master’s level.

iv). Must have qualified National Eligibility Test (NET) in any of the above mentioned disciplines mentioned at Sr. No. ii) conducted by ICAR/UGC/CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Clarivate Analytics (CA) impact factor.

v). Matric level certificate of Punjabi language from Punjab School Education Board or any other recognized Board (as first or second language). If not, the candidate is required to pass the same within one year of appointment.

**Note 1:** A candidate, who does not possess Master’s degree in Plant Breeding/Plant Breeding & Genetics/ Genetics (Crop Plants) but possesses Ph.D. degree in these disciplines, shall be eligible for the post.

**Note 2:** The candidate holding Doctorate degree in Plant Breeding/Plant Breeding & Genetics/ Genetics (Crop Plants) required at Master’s level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

**OR**

- The candidate completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted from NET, and

- The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0 or with Clarivate Analytics (CA) impact factor.

**OR**

- The candidate has minimum 3 research papers, each with at least NAAS rating of 4.5 or with Clarivate Analytics (CA) impact factor.

**Note 3:** In case of non-NAAS rated papers, Clarivate Analytics (CA) impact factor journals will be considered as NAAS rated with rating of 6+CA impact factor.

**Note 4:** Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

**Note 5:**

- The candidate should have cleared 4 years degree programme at Graduation/ Bachelor’s level except degrees in Basic Sciences.

- The candidate who have completed Bachelor degree in 3 years should have cleared their deficiency courses in relevant subjects of Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

**Job Responsibilities:**

i) To undertake research/teaching/extension education activities.

ii) To take initiative for developing research projects and to obtain funding.

iii) Any other duty that may be assigned from time to time.
16. Assistant Professor (Animal Science) (Outstation) in the pay scale of Rs.15600-39100+AGP Rs.6000/- p.m.

i) B.V.Sc/B.V.Sc& A.H./B.Sc (Agri)


iii) At least 60% marks at Bachelor’s level and 65% marks or OCPA of 6.50 out of 10.00 at Master’s level.

iv) Must have qualified National Eligibility Test (NET) in the relevant discipline conducted by ASRB/UGC/CSIR along with one publication in NAAS (National Academy of Agricultural Sciences, New Delhi) rated refereed journal and equivalent with at least 4.5 NAAS rating or with Thomson Reuter’s impact factor.

v) Must have passed Matric level certificate of Punjabi language from Punjab School Education Board or any other recognized Board (as first or second language).

Note 1: A candidate, who does not possess Master’s degree in the relevant subject but possesses Ph.D. degree in the discipline required at Master’s level, shall be eligible for the post.

Note 2: The candidate holding Doctorate degree in the relevant subject required at Master’ level shall be exempted from passing NET provided, it has been done with course work as prescribed by the UGC regulations 2009

OR

- The candidate having completed Ph.D without course work from among 500 top ranking foreign Universities of the world shall be exempted form NET, and

- The candidate has minimum 2 research publications having cumulative NAAS rating not less than 10.0.

OR

- The candidate has minimum 3 research papers, each with at-least NAAS rating of 4.5.

Note 3: In case of non-NAAS rated papers, Thomson Reuters (TR) impact factor journals will be considered as NAAS rated with rating of 6+TR impact factor.

Note 4: Only those research papers will be considered that have been published or accepted for publications by the last date of submission of application.

Note 5: The candidate should have cleared 4 years degree programme at Graduation/BachelorLevel except degrees in Basic Science & Social Science discipline.

- The candidates who completed Bachelor degree in 3 years should have cleared their deficiency courses in relevant subjects Bachelor’s degree during their Master’s degree or should have completed one year duration Hons./Bridged/special programme etc.

Job Responsibilities:-

i) To undertake Extension Education/Research/Teaching activities.

ii) To take initiative for developing research projects and to obtain funding.

iii) Any other duty that may be assigned from time to time.

The appointment to this post shall be co-terminus with the scheme, in which the post is provided.
17. **Programmer in the pay scale of Rs.15600-39100 + GP Rs. 5400/- p.m.**

i) B.E./B.Tech. in the field of Computer Engineering/Computer Science/Information Technology with minimum 60% marks.

OR

Integrated Master’s Degree in the field of Computer Engineering/Computer Science/Information Technology with minimum 60% marks.

OR

Master of Computer Applications with minimum 60% marks.

ii) Passed Punjabi subject up to the level of matriculation or equivalent.

**Note:**

a) Percentage of marks will be calculated as the aggregate of marks obtained in all the semesters/years of the qualifying or higher degree.

b) Formula for conversion of CGPA or OCPA to percentage marks must be provided by the applicant, if any.

c) If an applicant has more than one qualifying degrees, the degree with higher percentage of marks will be considered as the qualifying degree.

d) Only one higher qualification (higher than qualifying degree) with more percentage of marks will be considered for the purpose of merit list/score card.

e) All the applicants are allowed to appear in the written/practical/skill test but scrutiny of applications will be carried out only for those applications who will qualify this test with at least 25% marks and will be in top of the merit list.

f) Criteria for selection will be based on academic performance (as per eligibility criteria), higher qualifications, written/practical/skill test, programming (or relevant) experience and interview.

g) If any applicant’s degree does not fall in the above qualifications, the decision of the Scrutiny Committee and/or Selection Committee approved by the competent authority will be final.

*Age upto 37 years as on 1.1.2020.*

**NOTE: Age relaxation will be given as per Punjab Govt. Rules.**
18. **Assistant at KVKs (at outstation) in the scale of Rs.9300-34800+ GP Rs.4200/- p.m.**

**Essential Qualifications:**

1. A Bachelor’s degree from a recognized university
2. Working knowledge of Computer.
4. Age not less than 18 years and more than 37 years.

**Selection Procedure:**

The selection to the post of Assistant may be made through written test. A paper of 80 marks comprising Punjabi, English, Arithmetic and General Knowledge of Matric standard consisting of 20 marks of each paper shall be prescribed. The candidates will have to qualify the written test with at least 60% marks in aggregate but minimum 40% marks in each subject. The candidates will further be required to take a practical test of 10 marks for operation of computer and working knowledge regarding Microsoft windows including Microsoft word and those qualifying the same with at least 4 marks shall be eligible for selection. The candidate having passed the written test with the above aggregate and having passed the computer test shall be eligible for selection. The merit list of the candidates to be selected for appointment shall be prepared on the basis of aggregate marks obtained by them in the written/ practical test and out of 10 marks will be calculated according to percentage of marks obtained in graduation. Interview will not be conducted.

**Note:**

1. The appointment to these posts shall be co-terminus with the schemes in which these posts are provided.
2. The above posts are non promotional and inter KVKs transferable.
3. Reservation as per rules.
4. Age relaxation shall be as per Punjab Govt. Rules.
19. **Artist in the scale of Rs.10300-34800 + GPRs 3200/-**

**Essential Qualifications:**

1. Bachelor’s degree in Computer Science/Computer Applications/Information Technology.
2. Master’s degree in Computer Science/Computer Applications/Information Technology.
3. Must have passed Punjabi up to Matric level.
4. Minimum three years experience in Graphic Designing/Photoshop/Corel draw etc. in Desktop Publishing.
5. Age not less than 18 years and not more than 37 years.

**Selection Criteria:**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Particulars</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bachelor’s degree in Computer Science/Computer Applications/Information Technology</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Master’s degree in Computer Science/Computer Applications/Information Technology</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Experience in Graphic Designing/Photoshop/Corel Draw etc. in Desktop Publishing (experience will be counted after three years, 0.5 marks for six months)</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Experience of 3 years in Graphic Designing/Photoshop/Corel Draw etc. in Desktop Publishing</td>
<td>Eligibility criteria Must</td>
</tr>
<tr>
<td>5</td>
<td>Test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Written</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2. Practical</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Test Structure:**

**Written test (100 marks to be converted into 25 marks)** Time: 1 hour 30 minutes

1. The Written test will be of multiple choice type questions (MCQs) and the question for written test will be in English Language.
2. The written test will be conducted on the OMR sheet.
3. There will be 100 multiple choice questions [50 questions from the syllabus (technical related to the post), 30 questions from Arithmetic and mental ability and 20 questions from English].
4. Time allowed for the test will be 1½ hours.
5. The minimum qualifying marks for candidates to become eligible shall be 40% of total marks of the written test irrespective of the category. 01 mark will be awarded for each correct answer and ¼ th mark will be deducted for every wrong answer.

**Practical test (25 marks)** Time: 1 hour 30 minutes

1. One project assigned for duration of 3 hrs which include
   a. Corel Draw
   b. Adobe Photoshop

**Note:**

1. Age relaxation/reservation as per Punjab Govt. rules. The relaxation in age up to 45 years for the candidates who have been engaged in the PAU on contract basis. The relaxation in age will be equivalent to the period for which the candidate has served PAU/Govt. Organization/Boards/Corporations on contract basis.
2. The pay of the incumbent shall be regulated in terms of the Punjab Govt. circular No.7/204/2012-4FPI/66 dated 15-1-2015.
Syllabus for the post of Artist (Written Test)

1. Fundamentals of Information Technology (15%)
   a. Introduction: Components & classification of computer system - CPU, input and output devices and memory, units of memory, hardware and software, peripheral devices, operating systems, computer viruses, worms and vaccines.
   b. Operating system: WINDOWS: Graphical User Interface (GUI), desktop, taskbar and its elements. Windows Explorer, anatomy of a window, title bar, minimum, maximum and close buttons, scroll bars, menus and toolbars.
   c. Applications - MS WORD: Word processing, features of word processing packages.
      Creating, editing, formatting and saving a document in Ms Word, creating Headers/ Footers and tables, using Insert menu options, using tools like Macro, Mail Merge, Spelling, Grammar and track changes.
      MS EXCEL: electronic spreadsheet concepts, creating, editing and saving a spreadsheet, using basic in-built statistical and other functions and writing expressions, use of data analysis tools, correlation and regression, t-test for two-samples with one-way classification, creating graphs.
      MS POWERPOINT: creating and running presentations in PowerPoint.
      MS ACCESS: concept of databases, creating database, primary key, query, simple forms and reports, illustration through examples.
   d. Internet: Worldwide web (WWW) concepts, web browsing and electronic mail.

2. Computer System Architecture (15%)
   a. Register Transfer and Micro-operations: Register transfer language & operations, arithmetic micro operations, logic micro operations, shift micro operations, arithmetic logic shift unit. Design of a complete basic computer and its working.
   c. Design of Control Unit: Control memory, design of control unit micro programmed hardwired, and their comparative study.
   d. Central Processing Unit: General Register Organization, Stack Organization, Instruction formats, Addressing Modes, Data transfer and manipulations, Program control, RISC and CISC architecture.
   e. Input Output Organization: Peripheral devices, I/O interface, asynchronous data transfer, modes of transfer, priority interrupt, DMA, I/O processor, serial communication.
   f. Memory Organization: Memory hierarchy, main memory, auxiliary memory, associated memory, cache memory, virtual memory, memory management hardware.
   g. Advanced Concepts: Concept of pipeline, Arithmetic pipeline, vector processors and array processors. Introduction to parallel processing, Inter processor communication & synchronization.

3. Operating Systems (15%)

Thread: Definition, Various states, Benefits of threads, Types of threads, Concept of Multithreads,

Process Scheduling: Foundation and Scheduling objectives, Types of Schedulers, Scheduling criteria: CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time; Scheduling algorithms: Preemptive and Non-preemptive, FCFS, SJF, RR; Multiprocessor scheduling: Real-Time scheduling: RM and EDF.


d. Deadlocks: Definition, Necessary and sufficient conditions for Deadlock, Deadlock Prevention, and Deadlock Avoidance: Bakerr’s algorithm, Deadlock detection and Recovery.

e. Memory Management: Basic concept, Logical and Physical address map, Memory allocation: Contiguous Memory allocation – Fixed and variable partition, Internal and External fragmentation and Compaction,

 Paging: Principle of operation – Page allocation, Hardware support for paging, Protection and Sharing, Disadvantages of paging.


algorithms: Optimal, First in First Out (FIFO), Second Chance (SC), Not recently used (NRU) and Least Recently used (LRU).

f. I/O Hardware

I/O devices, Device controllers, direct memory access Principles of I/O Software: Goals of Interrupt handlers, Device drivers, Device independent I/O software, Secondary-Storage Structure: Disk structure, Disk scheduling algorithms,


Disk Management: Disk structure, Disk scheduling – FCFS, SSTF, SCAN, C-SCAN, Disk Reliability, Disk formatting, Boot-block, Bad blocks.

4. Programming in C(20%)


c. Data Input and Output: formatted & un-formatted input output. Control Statements: While, Do–while and for statements, Nested loops, IF-else, Switch, Break –Continue statements.
d. Control Statements: While, Do–while and for statements, Nested loops, If-else, Switch, break – continue statements.

e. Functions: Brief overview, defining, accessing functions, passing arguments to function, specifying argument data types, function prototypes, recursion.

f. Arrays: Defining, processing arrays, passing arrays to a function, multidimensional arrays.

g. Strings: String declaration, string functions, and string manipulation.

h. Structure & Unions: Defining and processing a structure, user defined data types, structures and pointers, passing structures to functions, unions.

i. Pointers: Understanding Pointers, Accessing the Address of a Variable, Declaration and Initialization of Pointer Variables, Accessing a Variable through its Pointer, Pointers and Arrays.

j. File Handling: File Operations, Processing a Data

5. Computer Graphics (35%)


b. Basic Raster Graphis: Scan conversion-Point plot technique, Line drawing, Circle generating and Ellipse generating algorithms.

c. Two-dimensional Geometric Transformations: Basic Transformations-Translation, Rotation and Scaling, Matrix Representation and Homogeneous Coordinates, Composite Transformations, Reflection and Shearing transformations.

d. Clipping: Window to view-port transformation, Clipping Operations-Point Clipping, Line Clipping, Polygon Clipping and Text Clipping.

e. Filling Techniques: Scan line algorithms, Boundary-fill algorithm, Flood-fill algorithm, Edge fill and fence fill algorithms.


g. Visibility: Image and object precision, Hidden edge/surface removal or visible edge/surface determination techniques; z buffer algorithms, Depth sort algorithm, Scan line algorithm and Flooding horizon technique.

Syllabus (Bracketed Text)

Desktop Publishing (Post of Artist)

Introduction of DTP, types of graphics, Desktop Publishing software, printing and publishing

CorelDraw

Getting started with Corel Draw - Introduction to Corel Draw, Features of Corel Draw, Corel Draw Interface, Tool Box, Moving from Adobe Illustrator to Corel Draw, Common Tasks

Drawing and Coloring -- Introduction, Selecting Objects, Creating Basic Shapes, Reshaping Objects, Organizing Objects, Applying Color Fills and Outlines

Mastering with Text -- Introduction, Text Tool, Artistic and Paragraph Text, Formatting Text, Embedding Objects into Text, Wrapping Text around Object, Linking Text to Objects


Working with Bitmap Commands -- Introduction, Working with Bitmaps, Editing Bitmaps, Applying Effects on Bitmaps, Printing

Corel Draw - Web Resources -- Introduction, Internet Tool Bar, Setting your Webpage, Exporting Files, Creating Buttons with Rollover Effects

Adobe Photoshop

Getting Acquainted with Photoshop - The Photoshop Environment, Opening Images, Using File Browser, Adobe Bridge Environment, Navigating, Opening & Placing Files, Searching for Files and Folders, Previewing Images

Basic Image Manipulation - Bitmap Images, Vector Images, Image Size and Resolution Settings, Scanning Images, Creating New Images, Placing Files

Color Basics - Color Modes and Models, Color Mode Conversion, Foreground and Background Colors, Using Color Picker, Selecting Colors with Color Palette, Selecting Colors with Eyedropper Tool, Selecting Colors with Swatches Panel

Painting Tools - Painting Tools, Brush Tool, Blending Modes, Pencil Tool, Eraser Tool, tMagic Eraser Tool, Background Eraser Tool, Using Art History Brush, Using History Brush, Using Brushes Palette

Making Selections - Selection Basics, Making Pixel Selections, Marquee Tools, Refining Edges of Selections, Lasso Tools, Magic Wand Tool, Quick Selection Tool, Selecting by Color
Range, Adjusting Pixel Selections, Extract Command, Copying and Pasting Pixel Selections, Saving and Loading Selections

**Filling and Stroking** - Applying Fills, Using Paint Bucket Tool, Using Gradient Tool, Using Gradient Editor, Using Patterns, Using Pattern Maker, Stroking


**Text** - Text Basics, Entering Text, Selecting Text, Editing Bounding Box, Creating Type Selection, Applying Effects to Type Layers, Using Character Panel, Checking for Spelling Errors, Using Paragraph Panel


**Using Channels and Masking** - Using Channels Palette, Using Channels, Spot Colors, Blending Channels and Layers, Masks, Using Alpha Channels

20. Junior Draftsman in the scale of Rs.10300-34800 + GPRs. 3200/-

i) Matriculation with 2 years Diploma in Draftsman Civil Engineering recognized by Govt. of India, Ministry of Labour Employment.

OR

Three years’ Diploma in Civil Engineering/Architect Assistantship

OR

B.Tech. Civil Engineering/ B.Arch.

ii) Two years’ technical experience in any University/ Board/ Corporation/Govt. undertakings/ Reputed Firms/ Architect etc. relating to Drafting of Drawings, preparation of rough cost estimates, detailed notice inviting tenders, analysis of rates and tender cases, use of Autocad and/or other drafting softwares etc.

iii) Punjabi up to Matric level.

iv) Age: 18 years to 37 years.

Note: 1. Reservation and age relaxation as per Punjab Govt. Rules. The relaxation in age up to 45 years for the candidates who have been engaged in the PAU on contract basis. The relaxation in age will be equivalent to the period for which the candidate has served PAU/ Govt. Organization/Boards/Corporations on contract basis.

2. The pay of the incumbent shall be regulated in terms of the Punjab Govt. circular No.7/204/2012-4FPI/66 dated 15-1-2015.
Subject: Selection criteria and Test Structure for written test for the post of Junior Draftsman.

Academic background (40% of 40 marks)

0.30 X % marks in 2 year Diploma in Draftsman Civil Engineering
OR
(i) 0.30 X % marks in 2 year Diploma in Draftsman Civil Engineering
(ii) 0.05 X % marks in 3 years Diploma in Civil Engineering / Architect Assistantship
OR
(i) 0.30 X % marks in 2 year Diploma in Draftsman Civil Engineering
(ii) 0.05 X % marks in 3 years Diploma in Civil Engineering / Architect Assistantship
(iii) 0.05 X % marks in B.Tech, Civil Engineering / B. Arch,
OR
(i) 0.35 X % marks in 3 years Diploma in Civil Engineering / Architect Assistantship
(ii) 0.05 X % marks in B.Tech, Civil Engineering / B. Arch,
OR
0.40 X % marks in B.Tech, Civil Engineering/ Arch.

Experience: 10 Marks

1/2 mark for each completed half year of technical experience in relevant field over and above the minimum required experience, if any.

Written Test (50% weightage or 50 Marks)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Subject</th>
<th>Weightage</th>
<th>No. of Questions</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General English</td>
<td>20%</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Mathematics</td>
<td>30%</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Technical</td>
<td>50%</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

Minimum 40% marks are required in the test for becoming eligible for the post.

Test structure for written test:

1. The written test will be of multiple choice type questions (MCQs) and questions will be in English language.
2. The written test will be conducted on the OMR sheet.
3. There will be 100 multiple choice type questions.
4. Time allowed for the test will be 2 hours.
5. There will be negative marking for the written test. For each correct answer, the candidate will be awarded one mark whereas 1/4 mark will be deducted for every wrong answer.

[Signature]

Chief Engineer
Punjab Agricultural University
Bathinda.
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

COMPETENCY BASED CURRICULUM

DRAUGHTSMAN CIVIL
(Duration: Two Years)

CRAFTSMEN TRAINING SCHEME (CTS)
NSQF LEVEL 5

SECTOR – CONSTRUCTION, CONSTRUCTION MATERIAL AND REAL ESTATE
# SYLLABUS FOR DRAUGHTSMAN CIVIL

<table>
<thead>
<tr>
<th>Week No.</th>
<th>Reference Learning Outcome</th>
<th>Professional Skills (Trade Practical) With Indicative Hours</th>
<th>Professional Knowledge (Trade Theory)</th>
</tr>
</thead>
</table>
| 1        | Recognize & comply safe working practices, environment regulation and housekeeping. | 1. Importance of trade training, demonstrate tools & equipments used in the trade. (02 hrs)  
2. Importance of housekeeping & good shop floor practices. (02 hrs)  
Occupational Safety & Health:  
Health, Safety and Environment guidelines, legislations & regulations as applicable (04 hrs)  
4. Disposal procedure of waste materials of the trade. (03 hrs)  
5. Personal protective Equipments (PPE): Basic injury prevention, Basic first aid (04 hrs)  
6. Hazard identification and avoidance, safety signs for - Danger, Warning, caution & personal safety message. (03 hrs)  
7. Preventive measures for electrical accidents & steps to be taken in such accidents. (02 hrs)  
8. Use of Fire extinguishers. (08 hrs) | Importance of safety and general precautions observed in the in the industry/shop floor. All necessary guidance to be provided to the new comers to become familiar with the working of Industrial Training Institute system including stores procedures. Soft Skills: its importance and job area after completion of training. Introduction of First aid. Introduction of PPEs. Introduction to SS concept & its application. Response to emergencies e.g., power failure, fire alarm, etc. |
| 2        | Draw free hand sketches of hand tools used in civil work. | 9. Awareness about the job sheets made by the ex. Trainees. (02 hrs)  
10. Use of drawing instruments. (03 hrs) | Familiarisation & information about rules and regulations of the Institute and Trade.  
Overview of the subjects to be |
<table>
<thead>
<tr>
<th>3 - 4</th>
<th>Draw plane figures applying drawing instruments with proper layout and folding of drawing sheets.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 - 6</td>
<td>Construct plain scale, comparative scale, diagonal scale and vernier scale.</td>
</tr>
<tr>
<td>7 - 9</td>
<td>Draw orthographic projections of different objects with proper lines, lettering and dimensioning.</td>
</tr>
</tbody>
</table>

11. Method of fixing of drawing sheet on the drawing board. (03 hrs)
12. Layout of different-size of drawing sheets and folding of sheets. (05 hrs)
13. Draw free hand sketch of hand tools used in civil work. (14 hrs)
15. Lines, lettering and dimensioning. (24 hrs)
16. Construction of plain geometrical figures. (17 hrs)
17. Drawing of:- Construction of scales – Plain, comparative, diagonal, vernier & scale of cords. (56 hrs)
18. Three views in Orthographic Projection of Line, plane, Solid objects & section of solids. (28 hrs)
19. Isometric Projection of geometrical solids. (28 hrs)
20. Construction of solid geometrical figures. (10 hrs)

- Importance of B.L.S.
- Knowledge of different types of scale. Principle of R.F.
- Stones – characteristics, types & uses.
- Bricks – Manufacturing characteristics of good bricks, types, sizes and hollow bricks.
- Lime – characteristics, types, manufacturing & its uses.
- Pozzolanic – characteristics, types & uses.
- Cement – Manufacturing characteristics, types, uses and test of good cement.
- Clay Products :- types, earthenware, stoneware,
| 10 | Draw component parts of a single storied residential building with suitable symbols and scales. |
| 11-13 | Draw different types of stone and brick masonry. |
| 14-15 | Draw different types of shallow and deep. |

### 21. Oblique and Perspective views of step block (30 hrs)

#### Drawing of:
- 22. Component parts of a single storied residential building (sectional details) showing
  - Foundation
  - Plinth
  - Doors
  - Windows
  - Brickwork
  - Roof
  - Lintel and Chajja, etc. (28 hrs)

### Building Materials:
- Timber - Types, Structure, disease & defects, characteristic, seasoning, preservation and utility
- Alternative material to Timber
- Plywood, Block board, Particle board, Fireproof reinforced plastic (FRP), Medium density fiberboard (MDF) etc.
- Tar, bitumen, asphalt
- Properties, applications and uses

### Protective Material:
- Paints - characteristic, types, uses
- Varnishes - characteristics and uses
- Metal - characteristic, types, uses
- Plastics - characteristic, types, uses

### Building Construction:
- Sequence of construction of a building
- Name of different parts of building
- Stone masonry
  - Terms, use and classification
  - Principle of construction, composite masonry
  - Strength of walls
  - Strength of masonry
  - Brick masonry - principles of construction of bonds, tools and equipments used

### Drawing of Foundation:
- Drawing of foundations:
- Drawing of different types of...
<table>
<thead>
<tr>
<th>17-18</th>
<th>Draw different types of</th>
<th>19</th>
<th>Drawing of different types of damp proofing in different position.</th>
<th>20-21</th>
<th>Drawing of different types of arches and lintels with Chajja.</th>
<th>22-23</th>
<th>Project work / on the job training breadth area -</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>shoring, scaffolding,</td>
<td></td>
<td>Drawing details of treatments in building:</td>
<td></td>
<td>Draw different forms of: -</td>
<td></td>
<td>(a) Prepare innovative drawing/ model on</td>
</tr>
<tr>
<td></td>
<td>underpinning, form</td>
<td></td>
<td>31. Shoring. (14 hrs)</td>
<td></td>
<td>38. Arch. (22 hrs)</td>
<td></td>
<td>(b) Stone/ brick masonry</td>
</tr>
<tr>
<td></td>
<td>work and timbering.</td>
<td></td>
<td>32. Scaffolding. (14 hrs)</td>
<td></td>
<td>39. Lintel. (22 hrs)</td>
<td></td>
<td>(c) Shallow/ deep foundation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>33. Underpinning. (14 hrs)</td>
<td></td>
<td>40. Lintel with Chajja. (22 hrs)</td>
<td></td>
<td>(d) Shoring, scaffolding, frame work and timbering</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>34. Timbering. (14 hrs)</td>
<td></td>
<td></td>
<td></td>
<td>(e) Damp proofing</td>
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</tbody>
</table>

- **Foundation**
  - Shallow
  - Spread footing. (20 hrs)
  - Grillage foundation. (22 hrs)
  - Deep
  - Pile foundation. (22 hrs)
  - Raft foundation. (18 hrs)
  - Well foundation. (18 hrs)
  - Special foundation. (12 hrs)

  - **Purpose of Foundation**
  - **Caus of failure of foundation**
  - Bearing capacity of soils
  - Dead and live loads
  - Examination of ground
  - Types of foundation
  - Drawing of footing foundation setting out of building on ground excavation
  - Simple machine foundation

  - **Building Construction**
  - **Types of shoring and scaffolding in details.**
  - Types of Underpinning and Timbering in detail

  - **Treatments of building structures**
    - DPC Sources and effects of dampness
    - Method of prevention of dampness in building
    - Damp proofing materials - properties, function and types.
    - Anti-termite treatment - objectives, uses and applications.
    - Weathering course - objectives and materials required.
    - Fire proofing - effect and rules.

  - **Archives** - Technical terms, types, concrete
  - **Lintel** - types, wooden, brick, stone, steel & RCC
  - **Chajja** - characteristics, Centring & Shuttering
Notes:

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2. Instructor may design their own project and also inputs from local industry may be taken for designing such new project.
3. The project should broadly cover maximum skills in the particular trade and must involve some problem solving skill.
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<th>Week No.</th>
<th>Reference Learning Outcome</th>
<th>Professional Skills (Trade Practical) With Indicative Hours</th>
<th>Professional Knowledge (Trade Theory)</th>
</tr>
</thead>
</table>
58. Equate Reduction of levels – Height of collimation and Rise and Fall method – Comparison of methods.
59. Solve problems on reduction of levels.
60. Calculate Missing data and how to fill it up – calculations & Arithmetical checks & various problems and its solution.
61. Practice levelling with different instruments.
62. Check levelling.
63. Profile levelling or Longitudinal, plotting the profile.
64. Surveying of a building site with chain and Levelling Instrument with a view to computing earth work.
65. Contour – Direct and Indirect methods.
66. Make Topography map, contours map.
67. Solve trigonometric problems.
68. Prepare a road project in a certain alignment.

35-37 Perform a site survey with Theodolite and prepare site plan.

Theodolite survey:
69. Field work of theodolite.
70. Horizontal angle.
71. Vertical angle.
72. Magnetic bearing of a line.
73. Levelling with a theodolite.
74. Calculation of area from traverse.
75. Determination of Heights.
76. Calculation of departure, latitude, northing and easting – (Total 36 hrs)
77. Setting out work – building, culvert, centre line of dams, Bridges and Slope of earth work, etc. (28 hrs)

function.
- Temporary and permanent adjustment, procedure in setting up.
- Levels, horizontal surface.
- Datum Benchmark, Focusing & parallel.
- Deduction of levels / Reduced Level.
- Types of levelling, Application to chain and Levelling Instrument to building construction.
- Contouring – Definition, Characteristics, Methods.
- Direct and Indirect methods
- Interpolation of Contour.
- Contour gradient , Uses of Contour plan and Map.
- Knowledge on road projects.

Theodolite survey:
- Introduction.
- Types of theodolite.
- Uses, Methods of Plotting.
- Transit vernier theodolite.
- Terms of transit theodolite.
- Fundamental line of theodolite.
- Adjustment of theodolite.
- Checks, Adjustment of errors.
- Open and closed traverse and their application to Engineering Problems.
- Vernier scale – types.
- Measurement of horizontal angle.
- Measurement of vertical...
<p>| 38-39 | Drawing of different types of carpentry joints. Draw different types of doors and windows according to manner of construction, Arrangement of component, and working operation. | Making detailed drawing of: 78. Carpentry joints: lengthening, bearing, housing, framing, panelling &amp; moulding. (22 hrs) 79. Different Types doors including panelled, glazed and flush door. (22 hrs) 80. Different types windows and ventilators. (12 hrs) | • Carpentry joints: Terms, classification of joints, Uses, types of fixtures, fastenings. • Doors -Parts, Location, standard sizes, types. • Windows-types. • Ventilators-purpose-types. |
| 40 | Prepare the detailed drawing of electrical wiring system. | Electrical Wiring: Prepare drawing of 81. Wiring in different system. (38 hrs) 82. Electrical wiring plan with all fittings showing in drawing. (20 hrs) | Electrical Wiring:  • Safety precaution and elementary first aid. • Artificial respiration and treatment of electrical shock. • Elementary electricity. • General ideas of supply system. • Wiremen’s tools, lit, wiring materials, Electrical fittings. • System of wirings. Wiring installations for domestic lightings. |
| 43-44 | Draw different types of vertical movement according to shape, location, materials by using stair, lift, ramp and escalator. | Drawing different forms of vertical movements:- 85. As per shape – Drawing of straight, open newel, dog-legged, geometrical and bifurcated stairs &amp; spiral stairs. (38 hrs) | • Stairs—Terms, Requirements, Planning and designing of stair and details of construction. • Basic concept of lift and Escalator |</p>
<table>
<thead>
<tr>
<th>45-47</th>
<th>Draw different types of roofs, truss according to shape, construction, purpose and span</th>
</tr>
</thead>
<tbody>
<tr>
<td>86.</td>
<td>As per material - brick, stone, wooden, steel &amp; RCC stairs. (20 hrs)</td>
</tr>
<tr>
<td>87.</td>
<td>Drawing of Lift and Escalator. (18 hrs)</td>
</tr>
<tr>
<td>48-49</td>
<td>Drawing details of:-</td>
</tr>
<tr>
<td>88.</td>
<td>Stopped/Pitched Roof Truss - King Post and Queen Post. Roof trusses showing detailed connections. (32 hrs)</td>
</tr>
<tr>
<td>89.</td>
<td>Steel roof trusses showing detailed connections. (30 hrs)</td>
</tr>
<tr>
<td>90.</td>
<td>Wooden roof truss, showing detailed connections. (22 hrs)</td>
</tr>
<tr>
<td>48-49</td>
<td>Roofs &amp; Roof coverings -</td>
</tr>
<tr>
<td></td>
<td>• purposes, Elements, Types, Flat, pitched.</td>
</tr>
<tr>
<td></td>
<td>• Truss, king post, queen post, mansard, bell-framed, steel, composite.</td>
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<tr>
<td></td>
<td>• Shell, Types, north light &amp; double curved.</td>
</tr>
<tr>
<td></td>
<td>• Dome, Components parts.</td>
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<tr>
<td></td>
<td>• Roof &amp; coverings – objectives, types &amp; uses.</td>
</tr>
</tbody>
</table>

### Project work / on the job training

Broad area:-

(a) Prepare site map using chain/prismatic compass/plane table / leveling instrument / theodolite.

(b) Prepare innovative drawing/model of doors/ windows.

(c) Prepare innovative drawing/model of vertical movement/roofs.

### 50-53

Revision

### 52

Examination

**Note:**

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<table>
<thead>
<tr>
<th>Week No.</th>
<th>Ref. Learning Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>53-54</td>
<td>Draw single storied Building site plan layout.</td>
</tr>
<tr>
<td>55-56</td>
<td>Create objects on CAD workspace using Toolbars, Commands, Menus, formatting layer and style.</td>
</tr>
<tr>
<td>57-58</td>
<td>Draw a sanction plan of double storied flat roof residential building</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Skills</th>
<th>With Indicative Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drawing details:</td>
<td></td>
</tr>
<tr>
<td>91. Single storied</td>
<td></td>
</tr>
<tr>
<td>residential house</td>
<td></td>
</tr>
<tr>
<td>with attached bath</td>
<td></td>
</tr>
<tr>
<td>of both pitched and</td>
<td></td>
</tr>
<tr>
<td>flat roof. (12 hrs)</td>
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</tr>
<tr>
<td>92. Staking plan,</td>
<td></td>
</tr>
<tr>
<td>elevation, and</td>
<td></td>
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<tr>
<td>section with aid of</td>
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<tr>
<td>line diagrams of the</td>
<td></td>
</tr>
<tr>
<td>building. (26 hrs)</td>
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<tr>
<td>93. Layout and</td>
<td></td>
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<tr>
<td>detailing of</td>
<td></td>
</tr>
<tr>
<td>residential building.</td>
<td></td>
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<tr>
<td>(06 hrs)</td>
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<tr>
<td>94. Create a drawing of building showing set backs.</td>
<td>(06 hrs)</td>
</tr>
<tr>
<td>95. Showing layout plan and key plan.</td>
<td>(06 hrs)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Knowledge</th>
<th>Trade Theory</th>
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</thead>
<tbody>
<tr>
<td>Building:</td>
<td></td>
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<tr>
<td>• Principle of planning</td>
<td></td>
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<tr>
<td>• Objectives &amp; importance.</td>
<td></td>
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<tr>
<td>• Function &amp; responsibility.</td>
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<tr>
<td>• Orientation.</td>
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<tr>
<td>• Local building Bye-Laws as per SI code.</td>
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<tr>
<td>• Lay out plan &amp; key plan.</td>
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<tr>
<td>• Submitted in composition of drawing.</td>
<td></td>
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<tr>
<td>• Provisions for safety.</td>
<td></td>
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<tr>
<td>• Requirement of green belt and land.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Computer aided drafting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Operating system, hardware &amp; software.</td>
</tr>
<tr>
<td>• Introduction of CAD.</td>
</tr>
<tr>
<td>• Its Graphical User Interface.</td>
</tr>
<tr>
<td>• Method of installation.</td>
</tr>
<tr>
<td>• Basic commands of CAD.</td>
</tr>
<tr>
<td>• Knowledge of Tool icons and set of Toolbars.</td>
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<tr>
<td>• Knowledge of shortcut keyboard commands.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building Planning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Economy &amp; orientation.</td>
</tr>
<tr>
<td>• Provision for lighting and ventilation.</td>
</tr>
<tr>
<td>• Provision for drainage and</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>by using CAD.</th>
<th>59-60 Draw a sanction plan of double storied flat roof residential building by using CAD.</th>
<th>63 Create objects on 3D modeling concept in CAD.</th>
<th>sanitation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>109. Design and create a double storied residential building (3BHK) with Positioning layout of furniture, Electrical appliances and plumbing / sanitary fittings. (12 hrs.)</td>
<td>113. Create and edit solid mesh and surface modeling.</td>
<td>114. Create and edit simple 2D regions and 3D solid models.</td>
<td>• Preparation.</td>
</tr>
<tr>
<td>115. Generate 3D text and dimensions using a variety of 3D display techniques.</td>
<td>116. Render a 3D model with a variety of lights and materials.</td>
<td>117. 3D modeling concept in CAD.</td>
<td>• Method of construction, assembling.</td>
</tr>
<tr>
<td>118. 3D modeling in CAD. (26 hrs)</td>
<td></td>
<td></td>
<td>• Advantages &amp; disadvantages.</td>
</tr>
<tr>
<td>62-63</td>
<td>Prepare a drawing of public building detailing with roof, columns by framed structure using CAD</td>
<td></td>
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<tr>
<td>64-65</td>
<td>Prepare detailed drawing of RCC structures using CAD and prepare bar bending schedule.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>66-66</td>
<td>Prepare detailed drawing of RCC structures using CAD and prepare bar bending schedule.</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building Drawing (Public)</th>
</tr>
</thead>
</table>
| Prepare:
117. A Primary health center for rural area with RCC roof. (10 hrs.)
118. A Village Library building with RCC flat roof. (06 hrs.)
119. A school Restaurant building with RCC flat roof. (06 hrs.)
120. A Single storeyed School building with RCC flat roof. (10 hrs.)
121. A small workshop with north light steel roof truss (6 to 10m Span) over RCC. Columns. (12 hrs.)
122. Service pl as. (06 hrs.)
123. A Bank building with RCC flat roof. (06 hrs.) |

<table>
<thead>
<tr>
<th>Reinforced cement concrete structure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Introduction to RCC uses.</td>
</tr>
<tr>
<td>- Materials – proportions</td>
</tr>
<tr>
<td>- Form work</td>
</tr>
<tr>
<td>- Bar bending details as per IS Code.</td>
</tr>
<tr>
<td>- Reinforced brick work.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Draw Reinforced details of RCC members:</th>
</tr>
</thead>
</table>
| 127. Preparing bar-bending schedule. (12 hrs.)
128. Details of one-way slab & two-way slab. (20 hrs.)
129. T-beams, inverted beam, cantilever, retaining wall, LIT well. (10 hrs.)
130. Columns with footing. (12 hrs.)
131. Continuous columns showing disposition of reinforcement. (13 hrs.)

<table>
<thead>
<tr>
<th>Materials used for RCC:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Construction.</td>
</tr>
<tr>
<td>- Selection of materials – coarse aggregate, fine aggregate, cement water and reinforcement.</td>
</tr>
<tr>
<td>- Characteristics.</td>
</tr>
<tr>
<td>- Shrink test.</td>
</tr>
<tr>
<td>- Structure – columns, beams, slabs - one way slab &amp; two-way slab.</td>
</tr>
<tr>
<td>- Innovative construction.</td>
</tr>
<tr>
<td>- Safety against earthquake.</td>
</tr>
</tbody>
</table>
| 69-70 | Draw the different types of steel sections, rivets and bolts using CAD. | Drawing of different types of-  
133. Steel sections, rivets, bolts, etc. (16 hrs)  
134. Sections and elevation of girders. (12 hrs)  
135. Structural joints. (12 hrs)  
136. Plate girders, roof trusses, stanchion etc. (16 hrs) | Steel structures-  
• Common forms of steel sections.  
• Structural fasteners, joints.  
• Tension & compression member.  
• Classification, fabrication.  
• Construction details. |
| 71-73 | Prepare the detailed drawing showing the different types of sanitary fittings, arrangements of manholes, details of septic tank using CAD. | Public Health & Sanitation.  
137. Drawings of showing various pipe joints for underground drainage. (12 hrs)  
138. Types of sanitary fittings in multi-storied building. (12 hrs)  
139. Manholes and septic tank. (16 hrs)  
140. Water supply system. (10 hrs)  
141. R.C.C square overhead tank supported by four columns. (12 hrs)  
142. Preparation of service plan (drainage plan) for isolated building & in sewer system. (10 hrs)  
143. Drawings of toilet fixtures. (66 hrs)  
144. Flow diagram of water treatment plant (WTP) and Swarege Treatment plant (STP). | House drainage of building-  
• Introduction.  
• Terms used in PHE.  
• Systems of sanitation.  
• System of house drainage.  
• Plumbing, sanitary fittings, etc.  
• Types of sewer appurtenance.  
• Systems of plumbing.  
• Manholes & Septic tank.  
• Water treatment plant  
• Swarege treatment plant |
| 74-75 |  
| Project work/ on the job training.  
Broad area-  
(a) Draw residential building plan of single/ double storied building using CAD for Municipal/ approval |
(b) Prepare drawing of public building detailing with roof, structure etc. using CAD.
(c) Prepare drawing of Bath/ Kitchen/ Reception Hall in details using Auto CAD 3D modeling with rendering.

<table>
<thead>
<tr>
<th>76-77</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>Examination</td>
</tr>
</tbody>
</table>

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</table>
| 79-81    | Draw the cross-sectional view of different types of roads showing component parts using CAD. | Roads:-  
145. Draw showing road structure and component parts. (28 hrs)  
146. Prepare a drawing of Cross-sections showing the different types of roads according to location & materials. (32 hrs)  
147. Prepare a drawing of road curves & gradient. (24 hrs)  
|          |                            | Roads:-  
• Introduction.  
• History of highway development.  
• General principles of alignment.  
• Classification and construction of different types of roads.  
• Component parts.  
• Road curves, gradient.  
• Curves-types, designation of curves.  
• Setting out simple curve by successive bisection from long chords.  
• Simple curve by offsets from long chords.  
• Road drainage system. |
| 82-83    | Draw the details of different types of culverts using CAD. Prepare detailed drawing of a bridge using CAD. | Bridge & Culvert:-  
148. Different types of culvert. (10 hrs)  
149. Preparing drawing of an arched bridge. (10 hrs)  
150. R.C.C Slab Culvert with splayed wing walls. (12 hrs)  
151. Steel Foot over bridge across a highway. (12 hrs)  
152. Two span Tee Beam Bridge with square returns. (12 hrs)  
|          |                            | Bridges & Culverts:-  
• Introduction to bridges.  
• Component parts of bridge.  
• Classification of culverts.  
• IRC loading.  
• Selection of type and location.  
• Factors governing the ideal site.  
• Alignment of bridge.  
• Foundation selection-calcium.  
• Coffre dams-types.  
• Types of super structure.  
• Substructure-piers, abutments, wing walls.  
• Classification of bridge.  
• Tunnels-rules used for the sizes of different members. |
| 84-85    | Draw the typical cross Railway:-  
|          |                            | Railway:-  
<p>| | | |
|          |                            | |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Task Description</th>
</tr>
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<tbody>
<tr>
<td>153</td>
<td>Draw typical cross section of railway track. (06 hrs)</td>
</tr>
<tr>
<td>154</td>
<td>Draw Railway tracks – embankment layout plans of railway platform. (22 hrs)</td>
</tr>
<tr>
<td>155</td>
<td>Draw typical cross-section of railway tracks, cutting &amp; embankment (single lane &amp; double lane). (22 hrs)</td>
</tr>
<tr>
<td>156</td>
<td>Draw layout of signalling points &amp; crossing. (06 hrs)</td>
</tr>
<tr>
<td>85-89</td>
<td>Prepare detailed drawing of typical cross sections of Dam, barrages, weir and Cross drainage works using CAD. Draw the schematic diagram of different structures of Hydro electric project using CAD.</td>
</tr>
<tr>
<td>157</td>
<td>Drawing of different types of irrigation structures. (18 hrs.)</td>
</tr>
<tr>
<td>158</td>
<td>Longitudinal section of distributaries with the help of given sketch &amp; data. (18 hrs.)</td>
</tr>
<tr>
<td>159</td>
<td>Head regulators. (15 hrs)</td>
</tr>
<tr>
<td>160</td>
<td>Types of cross drainage work. (18 hrs.)</td>
</tr>
<tr>
<td>161</td>
<td>Hydro electric project. (18 hrs.)</td>
</tr>
<tr>
<td>162</td>
<td>Drawing of canal</td>
</tr>
<tr>
<td>163</td>
<td>Alignment including longitudinal and cross sections of canals with the given data. (25 hrs)</td>
</tr>
</tbody>
</table>

**Irrigation Engineering:**
- Terms used in irrigation.
- Hydrology like duty, delta, base period, intensity of irrigation.
- Hydrograph, peak flow, run off, catchment area, CCA, corps like, tail, swale etc.
- Storage, diversion head work – characteristics and types.
- Reservoir – types of reservoirs, i.e., single purpose and multi-purpose, area, capacity and curves of reservoir.
- Dams, weir & barrages – types and purposes.
- Hydro electric project like Forebay, Penstock, Turbines, Power house, etc.
- Canals – classification and distribution system, canal structures.
<table>
<thead>
<tr>
<th>90-94</th>
<th>Prepare detailed estimate and cost analysis of different types of building and other structures using application software. Prepare rate analysis of different items of work. Problems on preparing preliminary/approximate estimates for building project.</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-97</td>
<td>Prepare a map using Total station.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>163. Prepare detailed Estimate - Calculate quantities of items of single storied and double storied building. (25 hrs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>164. Prepare abstract of estimate by prevailing rates. (20 hrs)</td>
</tr>
<tr>
<td>165. Prepare rate analysis of major items - RCC, PCC, Wood works, Stone &amp; Brick masonry &amp; Plastering. (30 hrs)</td>
</tr>
<tr>
<td>166. Solve problems on preparation of preliminary/ approximate estimates for building projects by Excel worksheet as per Govt. schedule. (25 hrs)</td>
</tr>
<tr>
<td>167. Familiarisation with and making estimation with software. (20 hrs)</td>
</tr>
<tr>
<td>168. Estimate earthwork of irregular boundaries. (20 hrs)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Station:--</th>
</tr>
</thead>
<tbody>
<tr>
<td>169. Application of survey using TS. (06 hrs)</td>
</tr>
<tr>
<td>170. Field procedure for co-ordinate measurement. (1.2 hrs)</td>
</tr>
<tr>
<td>171. Field procedure to run open traverse and closed traverse. (32 hrs)</td>
</tr>
<tr>
<td>172. Transfer or establish Bench Mark. (06 hrs)</td>
</tr>
<tr>
<td>173. Perform stakeout / demarcation of building layout /plot layout/ roads/ alignment. (10 hrs)</td>
</tr>
</tbody>
</table>

- Types of cross drainage works like Aquaduct, Super passage, Siphon, Level crossing, inlet and outlet, etc.

Estimating and Costing -:
- Introduction.
- Purpose and common techniques.
- Drawing of construction.
- Measurement techniques.
- Estimate-necessity, importance, types- approximate and detailed estimate-main and sub estimates, revised, supplementary, maintenance / repair estimate-taking off quantities- method.
- Rate analysis of typical items and their specifications.
- Labour and materials.
- Govt. Schedule of rate.
- Estimating of irregular boundaries by trapezoidal and Simpsons formula.

Total Station:
- Introduction.
- Components parts, accessories used.
- Characteristics, features.
- Advantages and disadvantages.
- Principle of EDM.
- Working and need.
- Setting and measurement.
- Electronic, display & Data reading.
- Rectangular and polar coordinate system.
174. Measure remote distance and elevation. (10 hrs)
175. 176. Calculate surface area on field/site. (06 hrs)
176. Calculate volume of field/site. (06 hrs)
177. Procedure for down, load and up load data. (06 hrs)
178. Simple survey map using Auto CAD. (06 hrs)

**98-99 Locate the station point using GPS and obtain a set of co-ordinates.**

<table>
<thead>
<tr>
<th>GPS Awareness:</th>
<th>GPS (Global Positioning System):</th>
</tr>
</thead>
<tbody>
<tr>
<td>179. Practical application of GPS Components of GPS data processing, GPS signal.</td>
<td>- Introduction of GPS system.</td>
</tr>
<tr>
<td>180. Code and biases Techniques of GPS observing.</td>
<td>- Co-ordinate and time system.</td>
</tr>
<tr>
<td>181. Set up and use GPS equipment. – (Total – 18 hrs)</td>
<td>- Satellite and conventional geodetic system.</td>
</tr>
<tr>
<td>182. Use GPS for a static survey (STK), in real time(RTK) mode. Record and process results to obtain a set of co-ordinates. (32 hrs)</td>
<td>- GPS. Signal, code, and biases</td>
</tr>
<tr>
<td>183. Compare with GPS, GPS/GRS &amp; CAD. (06 hrs)</td>
<td>- Role of TRANSIT in GPS development.</td>
</tr>
</tbody>
</table>

**100-101 Project work / on the Job training Auto CAD 3D modelling with rendering (material, light, shadow, etc.) Broad Area :-**

(a) Prepare project drawing of Roads with cross sectional views showing different components using CAD.
(b) Prepare detail project drawing of Culvert/ bridge using Auto Cad 3D modelling with rendering.
(c) Prepare project drawing of Dam/ barrage/Weir with cross sectional views using Auto CAD 3D modelling with rendering.

<table>
<thead>
<tr>
<th>Revision</th>
</tr>
</thead>
</table>

50
Note:

1. Some of the sample project works (indicative only) are given against each semester.
2. Instructor may design their own project and also inputs from local Industry may be taken for designing such new project.
3. The project should broadly cover maximum skills in the particular trade and must involve some problem solving skill.
4. If the instructor feels that for execution of specific project more time is required than he may plan accordingly to produce part/sub-drawings in appropriate time i.e., may be in the previous semester or during execution of normal trade practical.
5. Drawings at weeks 1 to 54 are in traditional and from 55 to 99 weeks are in computer drafting.
<table>
<thead>
<tr>
<th>Topic No.</th>
<th>Workshop Calculation</th>
<th>Workshop Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Unit:</strong> Systems of unit - FPS, CGS, MKS/SI unit, unit of length, Mass and time, Conversion of units.</td>
<td><strong>Material Science:</strong> properties - Physical &amp; Mechanical, Types - Ferrous &amp; Non-Ferrous, difference between Ferrous and Non-Ferrous metals, Introduction of Iron, Cast iron, Wrought iron, Steel, difference between Iron and Steel, Alloy steel, carbon steel, stainless steel, Non Ferrous metals, Non-Ferrous Alloys.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Fractions:</strong> Fractions, Decimal Fraction, L.C.M., H.C.F., Multiplication and Division of fractions and Decimals, conversion of Fraction to Decimal and vice versa. Simple problems using Scientific Calculator.</td>
<td><strong>Mass, Weight and Density:</strong> Mass, Unit of Mass, Weight, difference between mass and weight, Density, unit of density, specific gravity of metals.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Square Root:</strong> Square and Square Root, method of finding out square roots, Simple problem using calculator.</td>
<td><strong>Speed and Velocity:</strong> Rest and motion, speed, velocity, difference between speed and velocity, acceleration, retardation, equations of motions, simple related problems.</td>
</tr>
<tr>
<td>4</td>
<td><strong>Ratio &amp; Proportion:</strong> Simple calculation on related problems.</td>
<td><strong>Work, Power and Energy:</strong> work, unit of work, power, unit of power, Horse power of engines, mechanical efficiency, energy, use of energy, potential and kinetic energy, examples of potential energy and kinetic energy.</td>
</tr>
<tr>
<td>5</td>
<td><strong>Percentage:</strong> Introduction, Simple calculation. Changing percentage to decimal and fraction and vice-versa.</td>
<td><strong>Heat &amp; Temperature:</strong> Heat and temperature, their units, difference between heat and temperature, boiling point, melting point, scale of temperature, relation between different scale of temperature, Thermometer, pyrometer, transmission of heat, conduction, convection, radiation.</td>
</tr>
<tr>
<td>6</td>
<td><strong>Algebra:</strong> Addition, Subtraction, Multiplication, Division, Algebraic formulas, Linear equations (with two variables).</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Second Semester</strong></td>
<td><strong>Second Semester</strong></td>
</tr>
<tr>
<td>Course</td>
<td>Subject</td>
<td>Notes</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>2</td>
<td>Trigonometry</td>
<td>Trigonometrical ratios, measurement of angles, Trigonometric tables.</td>
</tr>
<tr>
<td>2</td>
<td>Measurement</td>
<td>Area and perimeter of square, rectangle, parallelogram, triangle, circle, semi circle, Volume of solids - cube, cuboid, cylinder and sphere.</td>
</tr>
<tr>
<td>2</td>
<td>Basic Electricity</td>
<td>Introduction, use of electricity, how electricity is produced, Types of current - AC, DC, their comparison, voltage, resistance, their units. Conductor, insulator, Types of connections - series, parallel, electric power, Horse power, energy, unit of electrical energy.</td>
</tr>
<tr>
<td>3</td>
<td>Livers and Simple Machines</td>
<td>Livers and its types. Simple Machines, Effort and Load, Mechanical Advantage, Velocity Ratio, Efficiency of machine, Relationship between Efficiency, velocity ratio and Mechanical Advantage.</td>
</tr>
</tbody>
</table>

### Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geometrical construction &amp; theorems</td>
<td>Division of line segment, parallel lines, similar angles, perpendicular lines, isosceles triangle and right angled triangle.</td>
</tr>
<tr>
<td>2</td>
<td>Area of cut-out regular surfaces</td>
<td>Circle and segment and sector of circle.</td>
</tr>
<tr>
<td>3</td>
<td>Area of irregular surfaces</td>
<td>Application related to shop problems.</td>
</tr>
<tr>
<td>4</td>
<td>Volume of cut-out solids</td>
<td>Hollow cylinders, frustum of cone, block section.</td>
</tr>
</tbody>
</table>
| 5 | Volume of simple machine blocks | \[
\text{Average Velocity, Acceleration & Retardation, Related problems.}
\]
| 6 | Material weight and cost problems | Related to trade. |
| 7 | Finding the value of unknown sides and angles of a triangle by Trigonometrical method | |
| 8 | Finding height and distance by trigonometry | |
| 9 | Application of trigonometry in shop problems (viz. taper angle calculation) | |

### Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Subject</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Graphs</td>
<td>Read images, graphs, diagrams - bar chart, pie chart.</td>
</tr>
<tr>
<td>2</td>
<td>Friction-co-efficient of friction</td>
<td>Application and effects of friction in Workshop practice.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Simple problem on Statistics:&lt;br&gt;- Frequency distribution table&lt;br&gt;- Calculation of Mean value.&lt;br&gt;- Examples on mass scale productions.&lt;br&gt;- Cumulative frequency&lt;br&gt;- Arithmetic mean</td>
<td>Centre of gravity and its practical application.</td>
</tr>
<tr>
<td></td>
<td>Magnetic substances - natural and artificial magnets.&lt;br&gt;- Method of magnetization. Use of magnets.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Acceptance of lot by sampling method (within specified limit size) with simple examples (not more than 20 samples).</td>
<td>Electrical insulating materials.&lt;br&gt;- Basic concept of earthing.</td>
</tr>
<tr>
<td>4</td>
<td>Transmission of power by belt, pulleys &amp; gear drive.&lt;br&gt;- Calculation of Transmission of power by belt pulley and gear drive.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Heat treatment and advantages.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Concept of pressure – units of pressure, atmospheric pressure, absolute pressure, gauge pressure – gauges used for measuring pressure</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Introduction to pneumatics &amp; hydraulics systems.</td>
<td></td>
</tr>
</tbody>
</table>
**EMPLOYABILITY SKILLS** (Duration: 110 Hours)

**CORE SKILL – EMPLOYABILITY SKILL**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Duration: 20 hrs</th>
<th>Marks: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Accentsuation (mode of pronunciation) on simple words, Diction (use of word and speech)</td>
<td></td>
</tr>
<tr>
<td>Spoken English/Spoken English</td>
<td>Transformation of sentences, Voice change, Change of tense, Spelling, Construction of simple sentences Writing simple English Speaking with preparation on self, on family, on friends/ classmates, on known people, picture reading, gain confidence through role-playing and discussions on current happening, job description, asking about someone’s job, habitual actions, Cardinal (fundamental) numbers, ordinal numbers, Taking messages, passing on messages and filling in message forms, Greeting and introductions, office hospitality, Resumes or curriculums via essential parts, letters of application reference to previous communication.</td>
<td></td>
</tr>
</tbody>
</table>

**IT literacy**

<table>
<thead>
<tr>
<th>Duration: 20 hrs</th>
<th>Marks: 09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>Introduction, Computer and its applications, Hardware and peripherals, Switching on/starting and shutting down of the computer.</td>
</tr>
<tr>
<td>Operating System</td>
<td>Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc. Use of Common applications.</td>
</tr>
<tr>
<td>Word Processing and Worksheet</td>
<td>Basic operating of Word Processing, Creating, Opening and Closing Documents, Use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion &amp; Creation of Tables, Printing document, Basics of Excel worksheet, understanding basic</td>
</tr>
</tbody>
</table>
### Computer Networking and Internet
- Basic of Computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web (WWW), Web Browser, Website, Web pages and Search Engines. Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email, Social media sites and its implication, Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT - ACT, types of cyber crimes.

### Communication Skills

<table>
<thead>
<tr>
<th>Duration</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 hrs</td>
<td>07</td>
</tr>
</tbody>
</table>

#### Introduction to Communication Skills
- Communication and its importance
- Principles of effective communication
- Types of communication - verbal, non-verbal, written, email, talking on phone
- Non-verbal communication - characteristics, components-Paralanguage
- Body language
- Barriers to communication and dealing with barriers
- Handling nervousness/discomfort

#### Listening Skills
- Listening—haring and listening, effective listening, barriers to effective listening, guidelines for effective listening
- Triple- A Listening - Attitude, Attention & Adjustment
- Active listening skills

#### Motivational Training
- Characteristics essential to achieving success
- The power of positive attitude
- Self awareness
- Importance of commitment
- Ethics and values
- Ways to motivate oneself
- Personal goal setting and employability planning

#### Role-playing Interviews
- Manners, etiquettes, dress code for an interview
- Do's & Don'ts for an interview
| Behavioral Skills | Problem solving  
|                  | Confidence building  
|                  | Attitude |

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Duration</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15 hrs</td>
<td>06</td>
</tr>
</tbody>
</table>

4. Entrepreneurship Skills

| Concept of Entrepreneurship | Entrepreneur - Entrepreneurship - Enterprises: Conceptual issue  
|                             | Entrepreneurship vs. management, Entrepreneurial motivation.  
|                             | Performance &record, Role &function of entrepreneurs in relation to the enterprise & relation to the economy, Source of business ideas, Entrepreneurial opportunities, The process of setting up a business. |
| Project Preparation & Marketing Analysis | Qualities of a good entrepreneur, SWOT and risk analysis. Concept &Application of PLC, Sales &Distribution management. Difference between small scale &large scale business, Market survey, Method of marketing, Publicity and advertisement, Marketing mix. |
| Institution's Support | Preparation of project. Role of various schemes and institutes for self-employment i.e. DG, SIDA, SSI, NSIC, SICO, Idea for financing/ non-financing support agencies to familiarize with the policies/ programmes, procedure & the available scheme. |
| Investment Procurement | Project formation, Feasibility, Legal formalities i.e., Shop act, Estimation Scouting, Investment procedure - Loan procurement - Banking processes. |

5. Productivity

| Benefits | Personal/Workman - Incentive, Production linked bonus, Improvement in living standard. |
| Affecting Factors | Skills, Working aids, Automation, Environment, Motivation - How it improves or slows down productivity. |
| Comparison with Developed Countries | Comparative productivity in developed countries (viz. Germany, Japan and Australia) in select industries, e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages. |
| Personal Finance Management | Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and insurance. |

6. Occupational Safety, Health and Environment Education

<table>
<thead>
<tr>
<th>Duration</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 hrs</td>
<td>06</td>
</tr>
<tr>
<td>Subject</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Safety &amp; Health</td>
<td>Introduction to occupational safety and health importance of safety and health at workplace.</td>
</tr>
<tr>
<td>Occupational Hazards</td>
<td>Basic hazards, chemical hazards, vibroacoustic hazards, mechanical hazards, electrical hazards, thermal hazards, occupational health, occupational hygiene, occupational diseases/disorders &amp; its prevention.</td>
</tr>
<tr>
<td>Accident &amp; Safety</td>
<td>Basic principles for protective equipment. Accident prevention techniques - control of accidents and safety measures.</td>
</tr>
<tr>
<td>First Aid</td>
<td>Care of injured &amp; sick at the workplaces, first-aid &amp; transportation of sick person.</td>
</tr>
<tr>
<td>Basic Provisions</td>
<td>Idea of basic provision legislation of India. Safety, health, welfare under legislative of India.</td>
</tr>
<tr>
<td>Ecosystem</td>
<td>Introduction to environment. Relationship between society and environment, ecosystem and factors causing imbalance.</td>
</tr>
<tr>
<td>Pollution</td>
<td>Pollution and pollutants including liquid, gaseous, solid and hazardous waste.</td>
</tr>
<tr>
<td>Energy Conservation</td>
<td>Conservation of energy, re-use and recycle.</td>
</tr>
<tr>
<td>Global Warming</td>
<td>Global warming, climate change and ozone layer depletion.</td>
</tr>
<tr>
<td>Ground Water</td>
<td>Hydrological cycle, ground and surface water, Conservation and harvesting of water.</td>
</tr>
<tr>
<td>Environment</td>
<td>Right attitude towards environment, Maintenance of In-house environment.</td>
</tr>
<tr>
<td>Labour Welfare Legislation</td>
<td>Duration: 05 hrs, Marks: 03</td>
</tr>
<tr>
<td>Quality Tools</td>
<td>Duration: 10 hrs, Marks: 05</td>
</tr>
<tr>
<td>Quality Consciousness</td>
<td>Meaning of quality, Quality characteristic.</td>
</tr>
<tr>
<td>Quality Circle</td>
<td>Definition, Advantage of small group activity, objectives of quality</td>
</tr>
<tr>
<td>Topic</td>
<td>Details</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Circle, Roles and function of</td>
<td>Quality Management System: Idea of ISO 9000 and BIS system and its</td>
</tr>
<tr>
<td>quality circles in organization. Operation</td>
<td>importance in maintaining qualities.</td>
</tr>
<tr>
<td>of quality circle. Approaches</td>
<td>Housekeeping: Purpose of housekeeping, Practice of good housekeeping.</td>
</tr>
<tr>
<td>to starting quality circles, Steps for</td>
<td>Quality Tools: Basic quality tools with a few examples.</td>
</tr>
<tr>
<td>continuation quality circles.</td>
<td></td>
</tr>
</tbody>
</table>
21. **Telephone Operator in the pay scale of Rs.5910-20200 + GP Rs.2400/-**

**Essential Qualifications:**

10+2 with Science or equivalent/Matric with one year Diploma/Certificate in Radio/Electronics Mechanics of Computer Operation and Maintenance with knowledge of Punjabi up to Matric.

**OR**

Matric with Science with 2 years experience in operation/maintenance of telephone exchange with knowledge of Punjabi up to Matric.

**OR**

Matric with 5 years experience in operation/maintenance of telephone exchange with knowledge of Punjabi up to Matric.

**Age:** Not less than 18 years and more than 37 years.

**Selection Criteria:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Practical Test</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>Qualifying Examination</td>
<td>30%</td>
</tr>
<tr>
<td>3</td>
<td>Higher Qualification</td>
<td>10%</td>
</tr>
<tr>
<td>4</td>
<td>Experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Note:**

i) Experience of working as Telephone Operator will be considered. ½ mark for each completed half year of technical experience in relevant field over and above the minimum required experience, if any will be awarded.

ii) Age relaxation/ reservation shall be applicable as per Punjab Govt. policy. However, relaxation in age up to 45 years for the candidates who have been engaged in the PAU on contract basis. The relaxation in age will be equivalent to the period for which the candidate has served PAU/Govt. Organization/Boards/Corporations on contract basis.

iii) The pay of the incumbent shall be regulated in terms of the Punjab Govt. circular No.7/204/2012-4FPI/66 dated 15-1-2015.
22. **Cook in the pay scale of Rs. 5910-20200+ GP Rs.1900/-**

1. 10+2 with Punjabi at matric level.
2. Should have diploma/certificate/vocational training in cooking from a recognized institution.
3. Age 18 to 37 years (relaxation in age as per reservation rules of Punjab Govt.)

**Selection Criteria:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Qualifications</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Practical Test</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>Required academic qualifications</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Higher qualifications</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Experience</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Test Structure:**

The practical test shall be comprise of following evaluation parameters.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameters</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Taste and flavour</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Presentation</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Orderliness</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Personal Hygiene</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

**Note:**

i). Weightage for experience will be 0.5 marks for every six months. Only relevant experience will be considered for the purpose.

ii). the pay of the incumbent shall be regulated in the terms of Punjab Govt. Circular no. 7/204/2012-4 FP.1/66 dated 15.1.2015.

iii). As per decision of Board of Management vide notification No.14353 dated 30.10.2018 the relaxation in age will be up to 45 years for the employees who have been engaged in University on contract basis for applying to the non-teaching posts (as per notification No.GSR.33/Const./ART 309/94 dated 4.5.1994 by the Punjab Govt.). The relaxation in age will be equivalent to period for which the employee has served PAU/Govt. organizations/Boards/Corporations on contract basis.

iv). Reservation will be applicable as per Punjab Government policy.
23. Dark Room Assistant in the pay scale of Rs. 5910-20200+ GP Rs.1900/-

Essential qualifications:

i) Candidate should be 10+2 with Science.
ii) Minimum 2 years working experience as a Dark Room Assistant in a minimum 20 bedded reputed Hospital.
iii) Should be passed in Punjabi up to Matric level.
iv) Age not less than 18 years and not more than 37 years.

Selection Criteria:

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Particulars</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Skill test</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>Qualifying examination</td>
<td>30%</td>
</tr>
<tr>
<td>3</td>
<td>Higher qualification</td>
<td>10%</td>
</tr>
<tr>
<td>4</td>
<td>Experience</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note 1: i) ½ mark for each completed half year of technical experience in the relevant field over and above the minimum required experience, if any will be awarded.
ii) To calculate score in case of qualifying exam and higher qualifications, the percentage of marks obtained by the candidate shall be multiplied by 0.30 and 0.10 respectively.

Note 2: The pay of the incumbent shall be regulated in the terms of Punjab Govt. Circular No. 7/204/2012-4 FP.1/66 dated 15.1.2015.

Note 3: Age relaxation/reservation as per Punjab Govt. rules.

Note 4: As per notification no.Admn.VI.AU.2018/14353 dated 30.10.2018, the relaxation in age up to 45 years for the candidates who have been engaged in the PAU on contract basis. The relaxation in age will be equivalent to the period for which the candidate has served PAU/Govt. Organisation/ Boards/Corporations on contract basis.