

## CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

### **Name and address of submitting body:**

Ground crew Examining Board (GEB)  
Air Force Station Chandigarh  
Chandigarh -160003

### **Name and contact details of individual dealing with the submission**

**Name:** Group Captain CR Sreeji VSM

**Position in the organisation:** Commanding Officer, GEB

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### **List of documents submitted in support of the Qualifications File**

1. Curriculum and training contents for Joint Basic Phase Training (JBPT) Annexure-I.
2. Curriculum and training contents for Trade Phase Training Term – I Annexure-II.
3. Curriculum and training contents for Trade Phase Training Term – II Annexure-III.
4. Curriculum and training contents for Trade Phase Training Term – III Annexure-IV.
5. Curriculum and training contents for Trade Phase Training Term – IV Annexure-V.
6. Air Force Order (AFO) 57/15 specifying the role of Struc Fit Fitter Annexure-VI.
7. Blue Print of REB (T) Annexure-VII.

## SUMMARY

<b>1. Qualification Title</b>	AC/LAC : Structure Fitter
<b>2. Qualification Code</b>	IAF/Stru/200
<b>3. NCO Code and Occupation</b>	7232.0100, Airframe Erector;7232.0200 Mechanic Aircraft Propeller; 7233.0100,Fitter General;5411.9900, Fire fighter others; 5414.0111,Security Supervisor;
<b>4. Nature and purpose of the qualification</b>	A trade and rank certificate to the personnel with adequate knowledge and skill to perform the duties of Aircraftsman/Leading Aircraftsman in Air Frame Section of aircraft division.
<b>5. Body/bodies which will award the qualification</b>	Mechanical Training Institute Air Force(MTI AF) & Regional Examining Board (Training) REB (T)
<b>6. Body which will accredit providers to offer courses leading to the qualification</b>	Directorate of Training (D Trg), Air HQ & Regional Examining Board (Training) REB(T)
<b>7. Whether accreditation/affiliation norms are already in place or not (if yes, attach a copy)</b>	N/A as specific to Defence Forces
<b>8. Occupation(s) to which the qualification gives access</b>	Aircraftsman /Leading Aircraftsman of Structure Fitter
<b>9. Job Description of the Occupation</b>	Maintenance and operation of various airframe structures and Ground equipment of IAF inventory at 1 <sup>st</sup> & 2 <sup>nd</sup> line level. For details refer Annexure: VI
<b>10. Licensing requirements</b>	N/A
<b>11. Statutory and regulatory requirements of the relevant sector (documentary evidence to be provided)</b>	Air Force Act, Air Force Regulations, Air Force Order,

<b>12. Level of the qualification in the NSQF</b>	4
<b>13. Anticipated volume of training/learning required to complete the qualification</b>	4140 Hrs comprising of: (a) 1050 Hrs of Joint Basic Phase Training (b) 2640 Hrs comprising of following three terms: (i) Trade Phase Training Term –I : 660 Hrs (ii) Trade Phase Training Term –II : 660 Hrs (iii) Trade Phase Training Term –III : 660 Hrs (iv) Trade Phase Training Term-IV : 660 Hrs (c) On Job Training (OJT) of 450 Hrs at Field Unit
<b>14. Indicative list of training tools required to deliver this qualification</b>	Classroom with modern AV aids, mechanical models, bay equipment of aircraft and ground equipment, computer applications. Fire arms, Range firing and Ground training.
<b>15. Entry requirements and/or recommendations</b>	<b>Education Qualification:</b> Passed Intermediate / 10+2 / equivalent examination in science stream / subjects approved by Central / State Education Boards with minimum 60% marks in aggregate and 50% marks in English. OR Passed two year vocational course affiliated / recognized by CBSE / State Education Boards/ Councils duly recognized at par with 10+2 by AIU with minimum 60% marks in aggregate, and 50% marks in English in Vocational Course or in Intermediate / Matriculation if English is not a subject in Vocational Course. <b>Age :</b> 17 Yrs -21 Yrs <b>Prerequisite for TPT:</b> Air warrior should have successfully completed Joint Basic Phase Training
<b>16. Progression from the qualification</b>	Job Progression <b>AC/LAC</b> →Cpl*→Sgt*→JWO*→WO→MWO *Subject to clearing promotion exam for Corporal (Cpl), Sergeant (Sgt) and Junior Warrant Officer (JWO) called as Corporal Promotion Exam (CPE), Sergeant Promotion Exam (SPE) and Junior Warrant Promotion Exam (JPE)
<b>17. Planned arrangements for the Recognition of Prior learning (RPL)</b>	N/A
<b>18. International comparability where known</b>	Not Known
<b>19. Date of planned review of the qualification.</b>	Every 5 yrs /earlier in case of change in training syllabus pattern.

<b>20. Formal structure of the qualification</b>			
<b>Title of component and identification code.</b>	<b>Mandatory/ Optional</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
1. Knowledge to undertake line servicing on aircraft, charging of air and hydraulic oil in pneumatic and hydraulic system respectively. (a) First line servicing on aircraft, charging of air and hydraulic oil in pneumatic and hydraulic system.  IAF/STRUC/200/01	<b>M</b>	<b>400</b>	<b>4</b>
2. Capability to undertake Marshalling of aircraft during day and night including helicopters.  IAF/STRUC/200/02	<b>M</b>	<b>500</b>	<b>4</b>
3. Capability to undertake Ground handling and picketing of aircraft.  IAF/STRUC/200/03	<b>M</b>	<b>300</b>	<b>4</b>
4. Knowledge on Duties of Inspector. IAF/STRUC/200/04	<b>M</b>	<b>400</b>	<b>4</b>
5. Awareness to work as Assistant in second line servicing, minor snag rectification, servicing and maintenance of ground equipment. IAF/STRUC/200/05	<b>M</b>	<b>500</b>	<b>4</b>
6. Knowledge about Removal, Inspection and fitment of wheel assy. IAF/STRUC/200/06	<b>M</b>	<b>300</b>	<b>4</b>
7. Knowledge on Second line servicing of aircraft, rectification of minor snags. IAF/STRUC/200/07	<b>M</b>	<b>540</b>	<b>4</b>
8. Knowledge on Charging of shock absorber and accumulators.	<b>M</b>	<b>400</b>	<b>4</b>

IAF/STRUC/200/08			
9. Awareness to work as Assistant in 3 <sup>rd</sup> & 4th line servicing of aircraft.	<b>M</b>	<b>400</b>	<b>4</b>
IAF/STRUC/200/09			
10. Capability to Assist in salvaging of ac.	<b>M</b>	<b>400</b>	<b>4</b>
IAF/STRUC/200/10			
<b>TOTAL</b>		<b>4140</b>	

Syllabus of all the TPT and assessment strategy Annexed as Annexure-I

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## **SECTION 1** **ASSESSMENT**

### **21. Body/Bodies which will carry out assessment:**

There are two bodies, which carry out the assessment:

1. Trade Phase Training (TPT) is completed through three/four terms respectively for Non Tech/Tech tradesmen. The formative and Summative Assessment during and at the end of the training is carried out by Unit Examining Board (UEB) of MTI respectively.

2. Regional Exam Board (Training) [REB (T)] is responsible for conducting the End Term Exam for gauging the knowledge acquired by the Personnel. The final certification and mustering into the trained trade is done by REB (T).

### **22. How will RPL assessment be managed and who will carry it out?**

N/A

### **23. Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.**

Assessment is carried out by both UEB and independent REB (TRG). Both the boards have all necessary infrastructure and pool of qualified Instructors, Examiners and Assessors to carry out detailed assessments. REB (T) uses all the modern trends like Online Testing and Evaluation System (OTES) for conducting the exams, evaluation and in-depth analysis of the result. The exams are conducted in the following manner

1. Written Exams are conducted by both boards for the theory part of curriculum consisting of questions divided into three categories (factual, comprehension, application) for testing the knowledge of Personnel in their trade:

- (a) Objective: Multiple Choice Question, True & False, Fill in the blanks
- (b) Subjective : Very Short Answer, Short Answer, Long Answer

2. Practical Exam to test the :

- (a) Professional Skill
- (b) Core Skill of the Personnel

3. Viva Voce to gauge the overall knowledge, and its application in resolving an issue.

Blue Print for conduct of Exam is attached as Annexure-VII.

## ASSESSMENT EVIDENCE

**Complete a grid for each component as listed in “Formal structure of the the qualification” in the Summary.**

*NOTE:* This grid can be replaced by any part of the qualification documentation which shows the same information – ie Learning Outcomes to be assessed, assessment criteria and the means of assessment.

### 24. Assessment Evidences

**Title of Component:**

Outcomes to be assessed	Assessment criteria for the outcome
<p>1. Knowledge to undertake line servicing on aircraft, charging of air and hydraulic oil in pneumatic and hydraulic system respectively.</p> <p>(a) First line servicing on aircraft, charging of air and hydraulic oil in pneumatic and hydraulic system.</p>	<p>1. Should have basic knowledge of:-</p> <ul style="list-style-type: none"> <li>(i) Construction, types function of ac airframe and its different components.</li> <li>(ii) Method and procedure of carrying out routine 1st line servicing of airframe &amp; components.</li> <li>(ii) Method and procedure of carrying out routine 1st line servicing of airframe &amp; components.</li> <li>(iii) Relevant servicing schedules, publications, log books, Forms and servicing organisation.</li> <li>(iv) Method of recording i.e. documentation.</li> <li>(v) Tools required for the servicing.</li> <li>(vi) Relevant safety-precautions.</li> <li>(vii) Topping up of oil and charging of air/nitrogen in the ac system.</li> </ul>
<p>2. Capability to undertake Marshalling of aircraft during day and night including helicopters.</p>	<p>Practical knowledge of Marshalling Signals by day and night of respective aircraft/helicopter and relevant safety precautions.</p>
<p>3. Capability to undertake Ground handling and picketing of aircraft.</p>	<p>Approved methods of ground handling of aircraft viz picketing and pushing etc. under supervision.</p>
<p>4. Knowledge on Duties of Inspector.</p>	<p>Conditions of wheels and tyres. Ensure no oil, fuel and air leak. Ensure no external blanking and covers present on aircraft. He should also ensure safety and security of panels.</p>

<p>5. Awareness to work as Assistant in second line servicing, minor snag rectification, servicing and maintenance of ground equipment.</p>	<p>(i) Should have practical knowledge of concerned aircraft system.</p> <p>(ii) Second line servicing procedure and relevant documentation.</p> <p>(iii) Types, construction function &amp; servicing scheme of ground eqpt.</p>
<p>6. Knowledge about Removal, Inspection and fitment of wheel assy.</p>	<p>(i) Should have thorough knowledge of construction, of wheels, tyres, tubes, their preservation and storage.</p> <p>(ii) Safety precautions for removal of fitment of wheel assemble.</p>
<p>7. Knowledge on Second line servicing of aircraft, rectification of minor snags.</p>	<p>(i) Construction, function &amp; operation of Air Frame Systems.</p> <p>(ii) Second line servicing schedule, documentation, tools and safety precautions.</p>
<p>8. Knowledge on Charging of shock absorber and accumulators.</p>	<p>Charging procedure of shock absorber and accumulation as per the servicing manuals and ac hand book.</p>
<p>9. Awareness to work as Assistant in 3<sup>rd</sup>&amp; 4th line servicing of aircraft.</p>	<p>Should be familiar with 3rd and 4th line servicing procedure.</p>
<p>10.Capability to Assist in salvaging of ac.</p>	<p>10. General guidelines and procedure of salvaging and retrieval of aircraft.</p>

### **Means of assessment 1**

There are two types of Assessments viz. Formative and Summative.

1. The Formative Assessment is carried out continuously during the conduct of course Exam & is conducted by UEB.
2. Summative Assessment is carried out at the end of the course. **Exam is conducted by REB (T)**

Details are mentioned under 'Means of Assessment-2'. Written test, Practical examination/ Skill test & Viva voce.

### **Means of assessment 2**

#### **1. Means of Formative Assessment (Total marks allotted- 250) conducted by UEB**

- |   |           |
|---|-----------|
| (a) Assignments for each module of Theory component       | 100 Marks |
| (b) Assignments for each module of Trade Skills component | 25 Marks  |
| (c) Job practical   | 75 Marks  |
| (d) Viva-voce   | 50 marks  |



**2. Means of Summative Assessment (Total marks allotted- 250) conducted by REB (T)**

- |   |          |
|---|----------|
| (a) Written test for Theory component       | 100Marks |
| (b) Written test for Trade Skills component | 25 Marks |
| (c) Job practical                           | 75 Marks |
| (d) Viva voce                               | 50 Marks |

Component wise distribution of marks is given in the Annexure-II.

**Pass/Fail**

The minimum qualifying standard is 50% marks in each part and 50% in aggregate of all parts of Course End Knowledge Test (CEKT) Exam conducted by REB (T). Those who score 70% in aggregate are directly mustered as Leading Aircraftsman (LAC).

Should pass within 2 attempts

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**SECTION 2**

**25. EVIDENCE OF LEVEL**

**OPTION A**

<b>Title/Name of qualification/component: Aircraftsman/Leading Aircraftsman of Structure Fitter</b>			<b>Level: 4</b>
<b>NSQF Domain</b>	<b>Outcomes of the Qualification/Component</b>	<b>How the outcomes relates to the NSQF level descriptors</b>	<b>NSQF Level</b>
Process	Air warrior carries out routine duties of maintenance and servicing of hydraulic system, pneumatic system, aircraft controls, undercarriage, wheels, tyres and tubes of aircraft/system. line servicing of aircraft/system for structure fitter and propulsion fitter trade. Other than the duties of combatant personnel.	Air warrior is able to identify the technical problem areas pertaining to structure fitter and propulsion fitter trades. Recognise the cause and able to resolve them or convey them to the higher level above him.	4
Professional knowledge	Personnel to have fair knowledge of hydraulic system, pneumatic system, aircraft controls, undercarriage, wheels, tyres and tubes of aircraft/system. Have working knowledge of various systems related to Structure fitter trade different publications and documentation. Be aware about the technical problems in respect of Aircraft/Helicopter/Ground System in which he is deployed.	Personnel are able to acquire the basic working knowledge of the Structure fitter and propulsion fitter trades for working on aircraft/Helicopter/Ground System. Knowledge about the ground equipment used for aircraft servicing. Organisation and roll of different technical and non-technical sections in the station. Knowledge about the Aerospace Safety. Lay out of Daily Servicing Section (DSS) and Central Repair and Servicing Section (CR&SS) sections. Handling of different technical Equipment. Basic knowledge of different technical publications. Uses of different tools	4

Title/Name of qualification/component: Aircraftsman/Leading Aircraftsman of Structure Fitter			Level: 4
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
		and testers. Knowledge about the logistic procedures and IMMOLS.	
Professional skill	Able to take up the job of Airframe Fitter on systems in Indian Air force.	Ability to recognise the cause of problem and understand the consequences it may lead to. Initiate corrective measures after consultation with the seniors	4
Core skill	Able to communicate well with all personnel of the Unit/Station. Able to read the technical publication, instructions, policies, orders in Hindi, English and local language. Can work on technical equipment/Aircraft/ground system, computer, and office desk jobs.	Depict good communication skills, have a fair good computer knowledge, can handle technical equipment/Aircraft/ground system, computer, and office desk jobs. Has good understanding of social and natural environment.	4
Responsibility	Able to carry out the duties and responsibilities of structure fitter tradesman with ease.	Capable of working independently and is responsible for his work.	4

**SECTION 3**  
**EVIDENCE OF NEED**

**26. What evidence is there that the qualification is needed?**

In IAF many types of sophisticated and costly electrical equipment and instruments are used both in ground system as well as in aircrafts. These personnel should be able to carry out day to day operation and maintenance of this equipment, also they should be able to undertake minor defect repair either at their own or under the guidance of a supervisor so that serviceability of all the equipment is always maintained at optimum level

Thus, after the JBPT, the TPT course gives the recruits in-depth knowledge to undertake the maintenance and repair of all electrical equipment and instrument used both in ground and air.

**What is the estimated uptake of this qualification and what is the basis of this estimate?**

Is based on the cadre and actual figures cannot be revealed

**27. Recommendation from concerned Line Ministry of Govt/Regulatory Body. To be supported by documentary Evidences**

The trade has been cleared by MoD and notification to the same effect is confidential in nature.

**28. What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF?**

This qualification is especially tailor made to suit the specific organisational requirements of IAF In some parts it does have some similarity with civil agency as regards to some portion of the syllabus for which the NOS have been equated.

**29. What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?**

IAF has well defined Directorates responsible for monitoring both the training and testing aspects. **Directorate of Training** is responsible for ensuring that right training is imparted to the recruits. The syllabus is based on various studies and feedback received from field units/ REB(T).

**Directorate of Education** is responsible for Trade Testing and evaluation of the knowledge and skill level of the personnel passing out from the training institute and their performance in field units.

This qualification will be reviewed and revised at an interval of five years or earlier, in case of change in syllabus based on the feedback from field Units/REB(T/Z).

#### **SECTION 4**

#### **EVIDENCE OF PROGRESSION**

**30. What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?**

On completion of the course, an Aircraftsman will be posted to Technical Type Training School (TETTRA) school, where he will undergo training on one of the specific system related to ground equipment or aircraft and after successful completion he will be detailed to work in one of the section of the Air Force unit after suitable OJT is imparted to him. With another five months of skill training under supervision he will be promoted to LAC. After three months of skill refinement he will be in a position to appear for Corporal Promotion Examination (CPE). On successful completion of CPE he will be promoted to Cpl after five years from date of enrolment. He will further keep climbing the promotion ladder by appearing for Sergeant Promotion Examination (SPE) for Sgt and Junior Promotion Examination (JPE) for JWO ranks. As per new policy in vogue, ACRs have been linked to skill levels. So, he will be motivated to enhance his skill levels and get them tested by appearing for SGT .

The progression flow is given below.

**AC→LAC→Cpl\*→Sgt\*→JWO\*→WO→MWO**

\*Subject to clearing promotion exam for Cpl, Sgt and JWO called as CPE, SPE and JPE

**INSTRUCTOR PREREQUISITES:** For posting as an instructor following prerequisites are to be fulfilled:-

(a) **Personal attributes:-**

- (i) Should be energetic, motivating, innovative and good at communication.
- (ii) Should be able to establish rapport with the trainees and employ innovative methods to impart instructions.

(b) **Qualification:-**

- (i) Should have attained rank of Sgt and above (at least 13 yrs of service).
- (ii) Should have been assessed 'Superior' and above during preceding 5 yrs.

(c) **QRs:-**

- (i) Should have in depth knowledge and be highly skilled in his trade.
- (ii) Should be recommended for instructional duties by GEB/REB on attaining stipulated standards during assessment.
- (iii) Should have undergone Methods of Instruction Course conducted by Ground Training Instructors School.

**Annexure-I**Curriculum and training  
contents for Joint Basic  
Physical Training (JBPT)**SCHEDULE OF TRAINING - JBPTC**

SI No.	Syllabus Index	Subject	Total Periods
<b>TRAINING ACTIVITIES DURING WORKING HOURS: SIX DAYS PER WEEK EXCEPT SECOND SATURDAYS</b>			
1.	JBPTC / GST / 1 to 12	General Service Training (including Field Craft Training camp)	590
2.	JBPTC / Eng / 1 to 4	English	350
3.	JBPTC / GSK / 1 to 11	General Service Knowledge	165
4.	JBPTC / Comp / 1 to 08	Basic Computer Training	50
5.	JBPTC/MAC/1 to 07	Mentoring & Counselling	45
TOTAL (SL NO 1 TO 5)		1200	
<b>TRAINING ACTIVITIES BEYOND WORKING HOURS – 200 PERIODS</b>			
6.	JBPTC / Hindi / 1 to 6	Hindi Training	36
7.	JBPTC / WTC / 1	Weak Trainees Classes / Night Classes	64
8.	JBPTC / GSD / 1	General Service Duties & Stn Duties	100
TOTAL (SL NO 6 to 8)		200 periods	
GRAND TOTAL (SL NO 1 TO 8)		1400 periods	
TOTAL EFFECTIVE TRAINING PERIODS		1400 periods=1400x45/60=1050 hour	

Annexure-II  
(Curriculum and  
training contents for  
Trade Phase Training  
Term – I)

**COMPUTATION OF EFFECTIVE PERIODS: STRUC FIT**

**TERM-I**

SI No	Subject (Common activities)	Total periods	Total Hours
1.	Health run, PT and OTW	166	$166 \times 45 / 60 = 124.30$
2.	GST (General Service Training)	48	$48 \times 45 / 60 = 36.00$
3.	GSD (General Service Duty)	28	$28 \times 45 / 60 = 21.00$
4.	Mid Term & End Term Examination	36	$36 \times 45 / 60 = 27.00$
5.	English	100	$100 \times 45 / 60 = 75.00$
6.	Computer and IW fundamentals	30	$30 \times 45 / 60 = 22.30$
7.	Basic Electronics and Electrical	30	$30 \times 45 / 60 = 22.30$
8.	Fundamentals of flights	12	$12 \times 45 / 60 = 09.00$
9.	Thermodynamics	16	$16 \times 45 / 60 = 12.00$
10	Trade Subjects	414	$414 \times 45 / 60 = 310.30$
<b>Total</b>		<b>880</b>	<b><math>880 \times 45 / 60 = 660.00</math></b>



**Annexure-III**

(Curriculum and training contents for Trade Phase Training Term – II)

**COMPUTATION OF EFFECTIVE PERIODS: STRUC FIT**

**TERM-II**

SI No	Subject (Common activities)	Total periods	Total Hours
1.	Health run, PT and OTW	148	148x45/60=111.00
2.	GST (General Service Training)	48	48x45/60=36.00
3.	GSD (General Service Duty)	28	28x45/60=21.00
4.	Mid Term, End Term Pre-REB & REB Examination	108	108x45/60=81.00
5.	Computer and IW fundamentals	37	37x45/60=27.45
6.	Aerospace Safety	36	36x45/60=27.00
7.	IMMOLS	20	20x45/60=15.00
8.	Trade Subjects	455	455x45/60=341.15
<b>Total</b>		<b>880</b>	<b>880x45/60=660.00</b>

**Annexure-IV**

(Curriculum and training contents for Trade Phase Training Term – III)

**COMPUTATION OF EFFECTIVE PERIODS: STRUC FITTER**

**TERM-III**

<b>SI No</b>	<b>Subject (Common activities)</b>	<b>Total periods</b>	<b>Total Hours</b>
1.	Health run, PT and OTW	166	$166 \times 45 / 60 = 124.30$
2.	GST	48	$48 \times 45 / 60 = 36.00$
3.	GSD (General Service Duty)	30	$30 \times 45 / 60 = 22.30$
4.	Mid Term & End Term Examination	36	$36 \times 45 / 60 = 27.00$
5.	Aerospace safety	28	$28 \times 45 / 60 = 21.00$
6.	Maintenance practices	51	$51 \times 45 / 60 = 38.15$
7.	Trade Subjects	521	$521 \times 45 / 60 = 390.45$
<b>Total</b>		<b>880</b>	<b><math>880 \times 45 / 60 = 660.00</math></b>

**Annexure-V**

(Curriculum and training contents for Trade Phase Training Term – IV)

**COMPUTATION OF EFFECTIVE PERIODS: STRUC FITTER**

**TERM-IV**

SI No	Subject (Common activities)	Total periods	Total Hours
1.	Health run, PT and OTW	144	144x45/60=108.00
2.	GST	48	48x45/60=36.00
3.	GSD (General Service Duty)	33	33x45/60=24.45
4.	Mid Term, End Term Pre-REB & REB Examination	108	108x45/60=81.00
5.	Passing out, clearance and departure	16	16x45/60=12.00
7.	Trade Subjects	531	531x45/60=398.15
<b>Total</b>		<b>880</b>	<b>880x45/60=660.00</b>

**Note:** Total training hours for Trade Phase Training for Term-I, Term-II, Term-III and Term-IV is 2640 (Specific to trade is 1440.45 hours and other activities like examination, practical training & Common subjects etc is 1199.15 hours. Total is 1440.45 + 1199.15 = 2640 hours)

**Annexure-VI**

(Air Force Order  
(AFO) 57/15  
specifying the role of  
Struc Fitter)

<b>STRUC FITTER: GROUP 'X'</b>	
<b>AIRCRAFTSMAN/LEADING AIRCRAFTSMAN</b>	
<p>1. Undertake line servicing on aircraft, charging of air and hydraulic oil in pneumatic and hydraulic system respectively. (a) First line servicing on aircraft, charging of air and hydraulic oil in pneumatic and hydraulic system.</p>	<p>1. Should have basic knowledge of:-</p> <ul style="list-style-type: none"> <li>(i) Construction, types function of ac airframe and its different components.</li> <li>(ii) Method and procedure of carrying out routine 1st line servicing of airframe &amp; components.</li> <li>(ii) Method and procedure of carrying out routine 1st line servicing of airframe &amp; components.</li> <li>(iii) Relevant servicing schedules, publications, log books, Forms and servicing organisation.</li> <li>(iv) Method of recording i.e. documentation.</li> <li>(v) Tools required for the servicing.</li> <li>(vi) Relevant safety-precautions.</li> <li>(vii) Topping up of oil and charging of air/nitrogen in the ac system.</li> </ul>
<p>2. Marshalling of aircraft during day and night including helicopters.</p>	<p>Practical knowledge of Marshalling Signals by day and night of respective aircraft/helicopter and relevant safety precautions.</p>
<p>3. Ground handling and picketing of aircraft.</p>	<p>Approved methods of ground handling of aircraft viz picketing and pushing etc. under supervision.</p>
<p>4. Duties of take of Inspector.</p>	<p>Conditions of wheels and tyres. Ensure no oil, fuel and air leak. Ensure no external blanking and covers present on aircraft. He should also ensure safety and security of panels.</p>
<p>5. Assist in second line servicing, minor snag rectification, servicing and maintenance of ground equipment.</p>	<ul style="list-style-type: none"> <li>(i) Should have practical knowledge of concerned aircraft system.</li> <li>(ii) Second line servicing procedure and relevant documentation.</li> <li>(iii) Types, construction function &amp; servicing scheme of ground eqpt.</li> </ul>

6. Removal, Inspection and fitment of wheel assy.	(i) Should have thorough knowledge of construction, of wheels, tyres, tubes, their preservation and storage. (ii) Safety precautions for removal of fitment of wheel assemble.
7. Second line servicing of aircraft, rectification of minor snags.	(i) Construction, function & operation of Air Frame Systems. (ii) Second line servicing schedule, documentation, tools and safety precautions.
8. Charging of shock absorber and accumulators.	Charging procedure of shock absorber and accumulation as per the servicing manuals and ac hand book.
9. Assist in 3rd& 4th line servicing of aircraft.	Should be familiar with 3rd and 4th line servicing procedure.
10. Assist in salvaging of ac.	10. General guidelines and procedure of salvaging and retrieval of aircraft.

**Annexure-VII**

(Blue Print of REB(T))

**BLUE PRINT MCKT**  
**REGIONAL EXAMINING BOARD (TRAINING), AIR FORCE****BLUE PRINT OF MCKT EXAMINATION SCHEME : STRUCTURE FITTER****SECTION –‘A’****Total Marks: 500**

1. The examination consists of four parts namely Part-I, Part-II, Part-III (A & B) and Part IV (A & B). The details of part wise examination are given below:-

<b>PART No.</b>	<b>NATURE OF EXAMINATION</b>	<b>DURATION OF EXAM</b>	<b>MARKS ALLOTTED</b>	<b>EXAM SCHEME PLACED AT</b>
Part – I	Trade (Theory)	3 hours	100	Section 'B'
Part – II	Trade (Theory)	3 hours	100	Section 'C'
Part – III (A)	Trade practical (two)	As required	150	Section 'D'
Part – III (B)	Trade viva-voce	As required	50	Section 'E'
Part – IV (A)	Workshop practical	As required	60	Section 'F'
Part – IV (B)	Workshop viva-voce	As required	40	Section 'G'

**DISTRIBUTION OF MARKS AND QUESTIONS FOR PART I & II EXAMINATION**

<b>TYPE OF QUESTION</b>	<b>No. OF QUESTIONS</b>	<b>MARKS FOR EACH QUESTION</b>	<b>TOTAL MARKS</b>
MCQ	20	01	20
VSA	10	02	20
S A	10	03	30
L A	06	05	30
TOTAL	46	-	100

2. The minimum qualifying standard is 50% marks in each part and 50% in aggregate of all parts of MCKT examination.
3. The effective date of implementation of this blue print is from Jan 2015 (Intake No. 01/2014).
4. Syllabus approved vide Air HQ letter Air HQ/18934/10/Trg/G dated 05 Mar 14.
5. Scheme of examination and assignment of marks confirms to TCASI/Part-II/TG/01/14.

NSQC Approved

**SCHEME OF EXAMINATION****PART-I OF WRITTEN (MCKT) EXAMINATION****DISTRIBUTION OF MARKS AND SYLLABUS****SECTION-‘B’**

Duration: 03 Hrs

Marks:

100

S L N o	Syllabus Index	Topics	Total (Theor y + Demo) period s  as per syllab us	Distribution of Question (Marks)											
				M C Q			Theory								
				F	C	A	VSA			SA			LA		
			F	C	A	F	C	A	F	C	A	F	C	A	
1	STRUC/AC STR/1 to 9	Aircraft structure	145	3	3	2	1	2	1	1	2	1	1	1	-
2	STRU FWS TECH/1 to 22	Workshop technology	114	2	3	1	1	1	1	1	1	1	1	1	-
3	STRUC/FOL RFLR/1 to 7	Basic FOL and refueller	43	-	1	1	-	1	-	1	-	-	-	-	1
4	COM M/BEE/1 to 4	Basic electrical and electronics	30	1	-	-	1	-	-	-	-	-	-	1	-
5	Com M/THERMO/1 to 6	Thermodynamics	16	1	-	-	-	-	-	-	1	-	-	-	-
6	COM M/FOF/1 to 4	Fundamentals of flight	12	-	1	-	-	1	-	-	-	-	-	-	-
7	STRUC/Prop/1 to 2	Propeller theory	12	-	1	-	-	-	-	1	-	-	-	-	-
Total			372	7	9	4	3	5	2	4	4	2	2	3	1



**SCHEME OF EXAMINATION****PART-II: WRITTEN (MCKT) EXAMINATION**  
**DISTRIBUTION OF MARKS AND SYLLABUS****SECTION-‘C’**Duration: 03 HrsMarks: 100

SL No	Syllabus Index	Topics	Total (Theory + Demo) periods as per syllabus	Distribution of Question (Marks)												
				M C Q			Theory									
				F	C	A	VSA			SA			LA			
F	C	A	F				C	A	F	C	A					
1	STRUC/AERO/1 to 13	Aerodynamics	127	3	3	1	1	2	1	1	1	1	1	1	1	-
2	STRUC/AC SYST/1 to 8	Aircraft system	66	1	1	1	1	1	-	1	-	1	-	1	-	-
3	STRUC/AC FUEL/1 to 5	Aircraft fuel system	57	1	1	1	-	-	1	1	1	-	-	1	-	-
4	SSTT/AS-I/1 to 10	Aerospace safety	36	1	1	-	-	-	-	-	1	-	-	-	-	1
5	STRUC/AC PNEU/1 to 4	Aircraft pneumatic system	32	-	1	1	-	1	-	-	-	-	-	1	-	-
6	STRUC/BSD/1 to 4	Basic skill development	27	-	1	-	1	-	-	-	1	-	-	-	-	-
7	CS/IMMOLS/1 to 8	Logistics and IMMOLS	16	-	1	-	-	-	-	1	-	-	-	-	-	-
8	STRUC/ENGG DRG/1 to 7	Engineering drawing	12	1	-	-	-	1	-	-	-	-	-	-	-	-
Total			373	7	9	4	3	5	2	4	4	2	2	3	1	

**SCHEME OF EXAMINATION**

**PART III (A): TRADE PRACTICAL (MCKT) EXAMINATION**

**DISTRIBUTION OF MARKS AND SYLLABUS**

**SECTION 'D'**

Duration: As required

Marks: 150

GP	Syllabus Index	Topics	Practical Periods		Marks
A	STRUC /BSD/1.1, 2.1, 2.2,3.1	Screw driving, Identification of spanner set, use of different type of spanners, type of torque wrenches & their uses	10	42	75
	STR F/BSD/4.2 to 4.5	Securing by locking wire, Split pin, tab washer, circlips	32		
B	STR F/BSD/5.1, 5.2	Identification, replacement, insulation check, care of batteries	8	39	75
	STR/ENGG DRG/2.1, 7.1	Precision instruments, drawing work, sectional view, off-Set drawing	4		
	STRUC/AC SYST/6.1	Turbo-cooler charging	4		
	STR F/AC PNEU/4.2	Ground charging procedure of pneumatic system.	10		
	CS M/IMMOLS/ 5.1,5.2,7.1,7.2	IMMOLS/demand/return/LPP, LRP	4		
	STRUC/FOL RFLR/3.1,3.2,7.1	Quality control of aviation fuel, CM-20 tester	9		
Total			81		150

**SCHEME OF EXAMINATION****PART III (B): TRADE VIVA VOCE (MCKT) EXAMINATION****DISTRIBUTION OF MARKS AND SYLLABUS****SECTION 'E'****Duration: As required****Marks: 50**

SL No	Syllabus Index	Topics	Theory + Demo Periods	Marks
1	STRUC/AC STR/1-9	Aircraft structure	145	50
2	STRUC/AERO/1-13	Aerodynamics	127	
3	STRUC/AC SYS/1-5, 7-8	Aircraft systems	66	
4	STRUC/AC FUEL/1-5	Aircraft fuel system	57	
5	STRUC/AC PNEU/1-4	Aircraft pneumatic system	32	
6	STRUC/FOL RFLR/1-6	Basic FOL & refueller	43	
7	SSTT/AS-I/1-10	Aerospace safety	36	
8	COM M /BEE/1-4	Basic electrical & electronics	30	
9	STRUC/BSD/1-4	Basic skill development	27	
10	COM M/THERMO/1-6	Thermodynamics	16	
11	STRUC/PROP/1-2	Propeller theory	12	
12	COM M/FOF/1-4	Fundamentals of flight	12	
13	STRUC/ENGG DRG/1-7	Engineering drawing	12	
14	CS/IMMOLS/1-8	Logistics and IMMOLS	16	
Total			631	50

**SCHEME OF EXAMINATION****PART IV (A) : WORKSHOP PRACTICAL (MCKT) EXAMINATION****DISTRIBUTION OF MARKS AND SYLLABUS****SECTION 'F'**Duration: As requiredMarks: 60

SI No.	Syllabus Index	Topics	Practical periods	Marks
1	STR FWS TECH/ 9.2 to 9.4	<b>Use of external, internal micrometers &amp; vernier calipers.</b>	6	60
2	STR FWS TECH/ 10.1	Hack sawing, filing, marking and finishing scaling dimensions (Mild Steel).	6	
3	STR FWS TECH/10.2	Hack sawing, filing, marking, finishing and fitting to scale dimensions (Mild steel).	12	
4	STR FWS TECH/12.1,13.1	Grinding, drills and reamers.	3	
5	STR FWS TECH/15.4	Pneumatic riveting tools.	2	
6	STR FWS TECH/18.1,	Simple lap joint with single row of rivets (Aluminium sheet).	6	
7	STR FWS TECH/18.2,	Simple lap joint with double row of rivets (Aluminium sheet).	6	
8	STR FWS TECH/18.3, 18.4	Simple butt joint with single strap.	6	
9	STR FWS TECH/18.4	Simple butt joint with double strap.	6	
10	STR FWS TECH/22.4	Removal of broken stud and bolt.	7	
<b>Total</b>			60	60

**SCHEME OF EXAMINATION****PART IV (B): WORKSHOP VIVA VOCE (MCKT) EXAMINATION****DISTRIBUTION OF MARKS AND SYLLABUS****SECTION 'G'****Duration: As required****Marks: 40**

<b>Sl. No.</b>	<b>Syllabus Index</b>	<b>Topics</b>	<b>Theory + Demo Hours</b>	<b>Marks</b>
1	STR FWS TECH/1-10	Materials, general propose tools, marking & measuring tools, Shaping and cutting tools, assembling and dismantling tools, metallurgy & engineering terms, metals(ferrous & non ferrous), heat treatment, precision instruments	59	40
2	STR FWS TECH/11-17 , 19-22	Soldering, welding , brazing, grinding, drills and reamers, AGS parts, rivets and riveting, corrosion and anti-corrosive treatment, safety engineering, general engineering, powder metals, plastic, rubber & insulating material, composite material, screw threads and thread cutting	55	
<b>Total</b>			<b>114</b>	

**BLUE PRINT CEKT**

**REGIONAL EXAMINING BOARD (TRAINING), AIR FORCE**

**BLUE PRINT OF EXAMINATION SCHEME**

**CEKT EXAMINATION: STRUC FIT**

**SECTION-'A'**

**Total Marks: 500**

2. The examination consists of three parts namely Part-I, Part-II and Part-III (A & B). The details of part wise examination are given below:-

<b>PART No.</b>	<b>NATURE OF EXAMINATION</b>	<b>DURATION OF EXAM</b>	<b>MARKS ALLOTTED</b>	<b>EXAM SCHEME PLACED AT</b>
Part – I	Trade (Theory)	3 hours	100	Section 'B'
Part – II	Trade (Theory)	3 hours	100	Section 'C'
Part – III (A)	Trade practical (two)	As required	150	Section 'D'
	Project	As required	50	
Part – III (B)	Trade viva-voce	As required	100	Section 'E'

**DISTRIBUTION OF QUESTIONS AND MARKS FOR PART I & II EXAMINATION**

<b>TYPE OF QUESTION</b>	<b>No. OF QUESTIONS</b>	<b>MARKS FOR EACH QUESTION</b>	<b>TOTAL MARKS</b>
MCQ	20	01	20
VSA	10	02	20
S A	10	03	30
L A	06	05	30
<b>TOTAL</b>	<b>46</b>	<b>-</b>	<b>100</b>

- The minimum qualifying standard is 50% marks in each part and 50% in aggregate of all parts of CEKT examination.
- The effective date of implementation of this blue print is from **JBPT** Intake No. 01/2014.
- Syllabus approved vide Air HQ letter Air HQ/18934/10/Trg/G dated 05 Mar 14.
- Scheme of examination and assignment of marks confirms to TCASI/Part-II/TG/01/14.
- The guidelines issued by GEB for preparation of blue print has been followed.

**SCHEME OF EXAMINATION****PART- I: WRITTEN (CEKT) EXAMINATION**  
**DISTRIBUTION OF MARKS AND SYLLABUS**  
**SECTION-‘B’**

Duration: 03 Hrs

Marks: 100

S L N O	Syllabus Index	Topics	Total (Theo ry + Demo ) Perio ds	Distribution of Questions												
				M C Q			Theory									
							VSA			SA			LA			
				F	C	A	F	C	A	F	C	A	F	C	A	
1	STRUC/AC HYD/1-13	Aircraft hydraulic	135	3	4	1	1	2	1	1	2	1	1	1	1	1
2	STRUC /ROT WG/1-11	Rotary wing aircraft	56	1	2	1	1	1	-	-	-	1	1	-	-	-
3	STRUC/JET/1-21	Basic jet engine	54	1	1	1	-	1	-	1	1	-	-	1	-	-
4	COM M/1-9	Maintenance practices	41	1	1	-	1	-	-	1	-	-	-	1	-	-
5	STRUC/CORR AC INSP/1	Corrosion and aircraft	21	1	-	-	-	1	-	1	-	-	-	-	-	-
6	STR F/NDI/1-5	Non destructive	18	-	1	-	-	-	1	-	-	-	-	-	-	-
7	STRUC/SOM/1-5	Strength of material	14	-	-	1	-	-	-	-	1	-	-	-	-	-
Total			339	7	9	4	3	5	2	4	4	2	2	3	1	1

**SCHEME OF EXAMINATION****PART- II: WRITTEN (CEKT) EXAMINATION**  
**DISTRIBUTION OF MARKS AND SYLLABUS**  
**SECTION-‘C’**

Duration: 03 Hrs

Marks: 100

S L N o	Syllabus Index	Topics	Total (Theo ry + Demo ) Perio ds	Distribution of Questions											
				M C Q			Theory								
							VSA			SA			LA		
				F	C	A	F	C	A	F	C	A	F	C	A
1	STRUC/AC COMP/1-7	Aircraft components	77	2	2	1	-	1	1	-	1	-	1	1	-
2	STRUF/ACSTR REP/1-10	Aircraft structure repair and painting	76	1	2	1	-	1	-	1	-	1	1	1	-
3	STRUC/TECH ADMN/1-5	Technical administration	67	1	2	1	1	1	1	1	1	-	-	-	1
4	STRUC/AC CONT/1-3	Aircraft control system	65	1	2	1	1	1	-	1	-	1	-	1	-
5	SSTT/AS-II/1-6	Aerospace safety	23	1	-	-	-	-	-	1	1	-	-	-	-
6	STRUC/AEACC /1-6	Basic aero engine accessories	17	-	1	-	1	1	-	-	-	-	-	-	-
7	STRUC/IDT/WP N/1	Intra discipline training	15	1	-	-	-	-	-	-	1	-	-	-	-
Total			340	7	9	4	3	5	2	4	4	2	2	3	1



**SCHEME OF EXAMINATION**  
**PART- III (A):TRADE PRACTICAL (CEKT)**  
**DISTRIBUTION OF MARKS AND SYLLABUS**  
**SECTION-'D'**

Duration: As required

Marks: 200

GP	Syllabus Index	Topics	Practical Periods		Mark s
A	STRUC/AC HYD/ 2.9, 2.10, 5.1, 6.1, 7.2, 7.3, 12 &13.	Removal, fitment, security, locking of rigid pipelines & flexible hose, Checking & filling of reservoir, checking and charging accumulator, fluid replenishing can, HST, fluid sampling, Millipore patch test, filter removal & fitment, pipeline clearance check.	52	11 2	75
	STRUC /ROT WG/ 5.3 & 10.2	MGB draining & replenishing of oil system, Jacking & Picketing.	12		
	STRUC/ AC CONT/ 2.4 & 2.11	Checking tension of control cables and flying control locks.	12		
	STRUC/ AC STR REP? 2.2, 3.3, 4.3, 6.2, 6.3, 7.2 & 10.1	Repair procedure negligible damage, brushes, brushing technique & care of brushes, removal of solid rivets, repair procedure patch & insertion, method of using sheet grippers & painting of ac structure.	36		
B	COM M/MP/1.1, 1.3, 5.1 & 8.2	Marshalling during day & night, Towing precautions & equipment, ac documents and fire extinguisher.	10	94	75
	STRUC/ JET/14.2-14.4	Oil filter & chip detector removal and fitment, oil tank replenishing.	16		
	STRUC/ AC COMP/ 3.9 - 3.12, 4.4 & 5.4	Removal & fitment of tube and tyre on loose flange wheel, removal & fitment of tubeless tyre on loose flange & divided wheel, oleo leg charging with oil & Nitrogen and wheel & brake unit servicing.	38		
	STRUC/TECH ADMN/ 5.6, 5.7, 5.11, 5.14 to 5.16	Aircraft/ aero engine / lifed component anticipation and extension, cannibalisation, FOD prevention, quality control of fuel & lubricants, ground handling of ac and picketing of ac & monsoon precautions.	16		
	STRUC/ NDI/ 2.1, 2.3 - 2.6	Visual inspection, Inspection with magnifying glass, Dye penetrant, Endoscope, magnetic, ultrasonic and eddy current flaw detection methods.	14		
C	STR F/ PROJ/1	Project.	48		50
Total			254		200

- Note: - 1. One practical from each Group (A & B).  
2. Participation of all candidates in projects is mandatory.

**SCHEME OF EXAMINATION****PART- III (B):TRADE VIVA VOCE(CEKT) EXAMINATION****DISTRIBUTION OF MARKS AND SYLLABUS****SECTION-‘E’****Duration: As required****Marks: 100**

<b>SL</b>	<b>Syllabus Index</b>	<b>Topics</b>	<b>Theory +Demo</b>	<b>Marks</b>
1	STRUC/AC HYD/1.1-2.8, 2.10 - 5.1, 8.1 to 11.3.	Aircraft hydraulic system	135	100
2	STRUC/AC COMP/1.1- 3.8, 4.1- 4.3, 6.1- 7.1.	Aircraft components	77	
3	STRF/AC STR REP/1.1- 4.2, 5.1- 5.3, 6.1, 6.4-7.1, 7.3 -10.1.	Aircraft structure repair & Painting	76	
4	STRUC/TECH ADMN/1.1- 5.18.	Technical administration	67	
5	STRUC/AC CONT/1.1-2.3, 2.5 - 3.5.	Aircraft control system	65	
6	STRUC/ROT WG/1.1-5.2, 6.1 - 9.1, 10.3 & 11.1.	Rotary wing aircraft	56	
7	STRUC/JET/1.1 - 14.1, 15.1- 21.1.	Basic jet engine theory	54	
8	COM M/MP/1.1- 9.1.	Maintenance practices	41	
9	SSTT/AS-II/1.1-3.3,4.1- 5.4.	Aerospace safety	23	
10	STRUC/CORR AC INSP/1.1 - 1.8	Corrosion & aircraft inspection	21	
11	STR F/NDI/1.1-5.1	Non-destructive inspection	18	
12	STRUC/AEACC/1 to 6	Basic aero engine accessories	17	
13	STRUC/IDT/WPN/1.1-1.9	Intra discipline training	15	
14	STRUC/SOM/1.1- 5.1	Strength of material	14	
<b>Total</b>			<b>679</b>	<b>100</b>