

Regulation, Scheme and syllabus for B.Voc Degree Programme in Production Technology

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1. Introduction

It has been a long felt necessity to align higher education with the emerging needs of the economy so as to ensure that the graduates of higher education system have adequate knowledge and skills for employment and entrepreneurship. The higher education system has to incorporate the requirements of various industries in its curriculum, in an innovative and flexible manner while developing a holistic and well groomed graduate.

Under the National Skills Development Corporation, many Sector Skill Councils representing respective industries have/are being established. One of the mandates of Sector Skill Councils is to develop National Occupational Standards (NOSs) for various job roles in their respective industries. It is important to embed the competencies required for specific job roles in the higher education system for creating employable graduates.

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF. The B.Voc. programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles and their NOSs alongwith broad based general education. This would enable the graduates completing B.Voc. to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

2. Objectives

2.1 To provide judicious mix of skills relating to a profession and appropriate content of General Education.

2.2 To ensure that the students have adequate knowledge and skills, so that they are work ready at each exit point of the programme.

2.3 To provide flexibility to the students by means of pre-defined entry and multiple exit points.

2.4 To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.

2.5 To provide vertical mobility to students coming out of 10+2 with vocational subjects.

3. Levels of Awards

The certification levels will lead to Diploma/Advanced Diploma/B. Voc. Degree in one or more vocational areas and will be offered under the aegis of the University. This is out-lined in Table I.

Awards	Award Duration	Corresponding NSQF level
Diploma	1 Year	5
Advanced Diploma	2 Years	6
B.Voc. Degree	3 Years	7

Table I : Awards

4. Eligibility for admission in B.Voc

The eligibility condition for admission to B.Voc.programme shall be 10+2 or equivalent, in any stream.

5. CREDIT STRUCTURE

NSQF Level	Skill Component Credits	General Educational Credits	Normal Calendar Duration	Exit Points/ Awards
Year 3	36	24	Six Semester	B. Voc.
Year 2	36	24	Four Semester	Advanced Diploma
Year 1	36	24	Two Semester	Diploma
Total	108	72		

6. The class structure and pattern of the examination

- The Number of students in a theory class shall not exceed 25.
- Maximum number of students in a batch for practical in first four semesters shall consist of 20 students and for fifth & sixth semester the batch shall consist of 15 students.
- The rules for admission to the subsequent (next) semesters will be the same as per the University guidelines.
- The Theory (**ESE**) and Practical Examinations will be conducted by the University at the end of each semester.
- The marks of internal (**IA**) and practical exam (**ESE**) should be submitted to University in the prescribed format.
- Assessment of skill component should be done by sector skill council or industry partner.

7. PROGRAMME STRUCTURE

Semester I

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MSE	ESE		
General Education										
			Theory							
1	BVPTC101	Machine Tool Technology	3	0	0	10	0	40	3	50
2	BVPTC102	General Mechanical Engineering - II	3	0	0	10	0	40	3	50
3	BVPTC103	Production Technology	3	0	0	10	0	40	3	50
4	BVPTC104	Metrology and Measuring Instruments	3	0	0	10	0	40	3	50
		Total							12	200
Skill Components										
			Lab/Practical							
5	BVPTL105	Metrology and Measuring Instruments Lab	0	0	1	25	0	25	1.5	50
6	BVPTL106	Machine Tool Technology Lab.	0	0	1	25	0	25	1.5	50
		On-Job-Training (OJT)/Qualification Packs (Any One)							Group GPT1	
7	BVPTE117	Metal Arc Welding (CSC/Q0204)	200						15	200
8	BVPTE128	MIG MAG or GMAW Welder (CSC/Q0209)								
9	BVPTE139	Assistant TIG Welder (CSC/Q0212)								
10	BVPTE140	CNC Setter Cum Operator (CSC/Q0120)								
11	BVPTE151	CNC Operator – VMC (CSC/Q0116)								
		Total							18	300

Semester II

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks		
			L	T	P	IA	MSE	ESE				
General Education												
Theory												
1	BVPTC201	Industrial Management	3	0	0	10	0	40	3	50		
2	BVPTC202	Total Quality Management	3	0	0	10	0	40	3	50		
3	BVPTC203	Entrepreneurship	3	0	0	10	0	40	3	50		
Total									9	150		
Skill Components												
Lab/Practical												
4	BVPTL204	Project	0	0	3	75	0	75	6	150		
On-Job-Training (OJT)/Qualification Packs (Any one more QP to be opted from the QPs mentioned in the semester I)									Group GPT2			
5	BVPTE117	Metal Arc Welding (CSC/Q0204)	200						15		200	
6	BVPTE128	MIG MAG or GMAW Welder (CSC/Q0209)										
7	BVPTE139	Assistant TIG Welder (CSC/Q0212)										
8	BVPTE140	CNC Setter Cum Operator (CSC/Q0120)										
9	BVPTE151	CNC Operator – VMC (CSC/Q0116)										
Total									21	350		

Semester III

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MSE	ESE		
General Education										
			Theory							
1	BVPTC301	Metal Casting Technology	3	0	0	10	0	40	3	50
2	BVPTC302	Production Automation & Computer Integrated Mfg.	3	0	0	10	0	40	3	50
3	BVPTC303	Fundamentals of Mechatronics	3	0	0	10	0	40	3	50
4	BVPTC304	Machining and Machine Tools	3	0	0	10	0	40	3	50
Total									12	200
Skill Components										
			Lab/Practical							
5	BVPTL305	Metal Casting Technology Workshop	0	0	1	25	0	25	1.5	50
6	BVPTL306	Mechatronics Lab	0	0	1	25	0	25	1.5	50
On-Job-Training (OJT)/Qualification Packs (Any One)										
7	BVPTE317	Service Engineer – Installation (CSC/Q0501)	200						15	200
8	BVPTE328	Quality Inspector – Forged, Casted or Machined Component (CSC/Q0601)								
9	BVPTE339	CNC Programmer (CSC/Q0401)								
10	BVPTE340	Maintenance Fitter – Mechanical (CSC/Q901)								
11	BVPTE351	CNC Setter Cum Operator – VMC (CSC/Q0123)								
Total									18	300

Semester IV

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MSE	ESE		
General Education										
Theory										
1	BVPTC401	Mass Production Devices	3	0	0	10	0	40	3	50
2	BVPTC402	Agile and Lean Manufacturing Systems	3	0	0	10	0	40	3	50
3	BVPTC403	Metal Forming Processes	3	0	0	10	0	40	3	50
4	BVPTC404	Non-conventional Machining	3	0	0	10	0	40	3	50
Total									12	200
Skill Components										
Lab/Practical										
5	BVPTL405	Tool and Die Making Lab - Practical	0	0	2	50	0	50	3	100
On-Job-Training (OJT)/Qualification Packs (Any one more QP to be opted from the QPs mentioned in the semester III)										
6	BVPTE317	Service Engineer – Installation (CSC/Q0501)	200						15	200
7	BVPTE328	Quality Inspector – Forged, Casted or Machined Component (CSC/Q0601)								
8	BVPTE339	CNC Programmer (CSC/Q0401)								
9	BVPTE340	Maintenance Fitter – Mechanical (CSC/Q901)								
11	BVPTE351	CNC Setter Cum Operator – VMC (CSC/Q0123)								
Total									18	300

Semester V

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MSE	ESE		
General Education										
			Theory							
1	BVPTC501	Reliability, Maintenance & Safety Engineering	3	0	0	10	0	40	3	50
2	BVPTC502	Plant Layout and Product Handling	3	0	0	10	0	40	3	50
3	BVPTC503	Product Design for Manufacturing	3	0	0	10	0	40	3	50
4	BVPTC504	CAD & CAM	3	0	0	10	0	40	3	50
Total									12	200
Skill Components										
			Lab/Practical							
5	BVPTL505	CAD & CAM Lab - Practical	0	0	2	50	0	50	3	100
			On-Job-Training (OJT)/Qualification Packs (Any One)							
6	BVPTE516	Tool & Die Maker (CSC/Q0306)	200						15	200
7	BVPTE527	Designer – Mechanical (CSC/Q0405)								
8	BVPTE538	Service Engineer – Breakdown Service (CSC/Q0503)								
Total									18	300

Semester VI

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MS E	ESE		
General Education										
			Theory							
1	BVPTC601	Rapid Prototyping and Reverse Engineering	3	0	0	10	0	40	3	50
2	BVPTC602	Production Planning & Control	3	0	0	10	0	40	3	50
Total									12	200
Skill Components										
			Lab/Practical							
3	BVPTL603	Project Work	0	0	4	100	0	100	9	200
On-Job-Training (OJT)/Qualification Packs (Any one more QP to be opted from the QPs mentioned in the semester V)										
6	BVPTE516	Tool & Die Maker (CSC/Q0306)	200						15	200
7	BVPTE527	Designer – Mechanical (CSC/Q0405)								
8	BVPTE538	Service Engineer – Breakdown Service (CSC/Q0503)								
Total									18	300