

# **Regulation, Scheme and syllabus for B.Voc Degree Programme in Electronics Manufacturing Services**

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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
<b>Total</b>	<b>108</b>	<b>72</b>		

#### 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		
<b>General Education</b>										
			<b>Theory</b>							
1	BVEMC101	Electronic Measurement and Instrumentation –I	3	0	0	10	0	40	3	50
2	BVEMC102	Identification of Components, Tools, SOP & Work Instructions-I	3	0	0	10	0	40	3	50
3	BVEMC103	Tools, Equipment & Safety Measures –I	3	0	0	10	0	40	3	50
4	BVEMC104	Soldering & De-Soldering of Components –I	3	0	0	10	0	40	3	50
			<b>Total</b>						<b>12</b>	<b>200</b>
<b>Skill Components</b>										
			<b>Lab/Practical</b>							
5	BVEML105	Identification of Components, Tools, Equipment and its working –Lab	0	0	1	25	0	25	1.5	50
6	BVEML106	Electronic Measurement and Instrumentation -I –Lab	0	0	1	25	0	25	1.5	50
			<b>On-Job-Training (OJT)/Qualification Packs (Any One)</b>						<b>Group GEM1</b>	
7	BVEME117	Embedded Software Engineer (ELE/Q1501)	200						15	200
8	BVEME128	Security Pack-security surveillance and access control supervisor (ELE/Q4611)								
9	BVEME139	Systems Analyst (ELE/Q8701)								
			<b>Total</b>						<b>18</b>	<b>300</b>

**Semester II**

Sr. No	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MSE	ESE		
<b>General Education</b>										
			<b>Theory</b>							
1	BVEMC201	Electronic Measurement and Instrumentation –II	3	0	0	10	0	40	3	50
2	BVEMC202	Identification of Components, Tools, SOP & Work Instructions-II	3	0	0	10	0	40	3	50
3	BVEMC203	Tools, Equipment & Safety Measures –II	3	0	0	10	0	40	3	50
4	BVEMC204	Soldering & De-Soldering of Components & Emergency actions II	3	0	0	10	0	40	3	50
			<b>Total</b>						<b>12</b>	<b>200</b>
<b>Skill Components</b>										
			<b>Lab/Practical</b>							
5	BVEML205	Soldering & De-Soldering of Components-Lab	0	0	1	25	0	25	1.5	50
6	BVEML206	Electronic Measurement and Instrumentation -II Lab	0	0	1	25	0	25	1.5	50
			<b>On-Job-Training (OJT)/Qualification Packs (Any One)</b>						<b>Group GEM2</b>	
7	BVEME217	Smartphone Repair Technician (ELE/Q8104)	200						15	200
8	BVEME228	Business Development Executive (ELE/Q1101)								
			<b>Total</b>						<b>18</b>	<b>300</b>

**Semester III**

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MSE	ESE		
<b>General Education</b>										
			<b>Theory</b>							
1	BVEMC301	Fault analysis & Repairs	3	0	0	10	0	40	3	50
2	BVEMC302	Good Manufacturing Concept & Practices – I	3	0	0	10	0	40	3	50
3	BVEMC303	Electronics Devices Circuit –I	3	0	0	10	0	40	3	50
	BVEMC304	Electronics System Packaging and Manufacturing	3	0	0	10	0	40	3	50
<b>Total</b>									<b>12</b>	<b>200</b>
<b>Skill Components</b>										
			<b>Lab/Practical</b>							
4	BVEML305	Electronics Devices Circuit –I Lab	0	0	1	25	0	25	1.5	50
	BVEML306	Fault analysis & Repairs - Lab	0	0	1	25	0	25	1.5	50
<b>On-Job-Training (OJT)/Qualification Packs ( Any One)</b>										
5	BVEME317	Field Engineer RACW (ELE/Q3105)	200						15	200
6	BVEME328	Security System Service Engineer (ELE/Q4610)								
7	BVEME339	Pre-Sales Solar Technical Support Engineer (ELE/Q5602)								
<b>Total</b>									<b>18</b>	<b>300</b>

**Semester IV**

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MSE	ESE		
<b>General Education</b>										
			<b>Theory</b>							
1	BVEMC401	Good Manufacturing Concepts Practices-II	3	0	0	10	0	40	3	50
2	BVEMC402	Manufacturing & Quality Norms	3	0	0	10	0	40	3	50
3	BVEMC403	Good Manufacturing Concepts & Practices-III	3	0	0	10	0	40	3	50
4	BVEMC404	Electronics Devices Circuit -II	3	0	0	10	0	40	3	50
<b>Total</b>									<b>12</b>	<b>200</b>
<b>Skill Components</b>										
5	BVEML405	Electronics Devices Circuit -II Lab	0	0	1	25	0	25	1.5	50
6	BVEML406	Manufacturing Practices	0	0	1	25	0	25	1.5	50
<b>On-Job-Training (OJT)/Qualification Packs ( Any One)</b>										
7	BVEME417	Purchase Executive (ELE/Q5701)	200						15	200
8	BVEME428	Quality Engineer (ELE/Q7901)								
<b>Total</b>									<b>18</b>	<b>300</b>

**Semester V**

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks
			L	T	P	IA	MSE	ESE		
<b>General Education</b>										
			<b>Theory</b>							
1	BVEMC501	Valuation & Storage	3	0	0	10	0	40	3	50
2	BVEMC502	Shelf Life, Ware House Operations Management & Material Transactions	3	0	0	10	0	40	3	50
3	BVEMC503	Industrial Electronics Product Design	3	0	0	10	0	40	3	50
4	BVEMC504	Pre-Production Activities	3	0	0	10	0	40	3	50
<b>Total</b>									<b>12</b>	<b>200</b>
<b>Skill Components</b>										
5	BVEML505	Pre-Production Activities-Lab	0	0	1	25	0	25	1.5	50
6	BVEML506	Valuation & Storage-Lab	0	0	1	25	0	25	1.5	50
<b>On-Job-Training (OJT)/Qualification Packs ( Any One)</b>										
7	BVEME517	Product Engineer (ELE/Q4201)	200						15	200
8	BVEME528	Incoming QC Technician (ELE/Q4401)								
9	BVEME539	Assembly Supervisor (ELE/Q6305)								
<b>Total</b>									<b>18</b>	<b>300</b>



### Semester VI

Sr. No.	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks	
			L	T	P	IA	MSE	ESE			
<b>General Education</b>											
			<b>Theory</b>								
1	BVEMC601	Entrepreneurship/Accounting/Management	3	1	0	20	0	80	3	100	
<b>Total</b>									<b>3</b>	<b>100</b>	
<b>Skill Components</b>											
			<b>Lab/Practical</b>								
2	BVEML602	Project Work	0	0	4	100	0	100	12	200	
			<b>On-Job-Training (OJT)/Qualification Packs (Any One)</b>								
3	BVEME613	FPGA Design Engineer (ELE/Q8201)	200							15	200
4	BVEME624	Sales Executive-Consumer Electronics (ELE/Q3201)									
<b>Total</b>									<b>27</b>	<b>400</b>	