RAJASTHAN TECHNICAL UNIVERSITY, KOTA
Guideline & Syllabus
Bridge Course 2020-21 and onwards

OFFICE OF THE DEAN, ACADEMIC AFFAIRS
RAJASTHAN TECHNICAL UNIVERSITY, KOTA
RTU/Acad./F(17)04/Bridge Course(LEEP)/20/2773-77Date: 23.12.2020
24.

OFFICE ORDER

As per resolution of 27th (Special) meeting of Faculty of Engineering & Architecture (FOEA) held on 18.11.2020 and subsequent approval of Academic Council vide agenda AC 31.1T in 36th Board of Management at agenda 36.4, the guidelines for the Bridge Course for the students admitted to the 2nd year during session 2020-21 through Lateral Entry (LEEP) has been approved.

Encl.: Bridge Course Guidelines

(Prof. D.K. Palwalia)
Dean Academic Affairs

C.C.to:
1. PS to HVC for information
2. Dean FOEA
3. Controller of Examinations, RTU Kota – to initiate action accordingly.
4. Registrar (Member Secretary) Academic Council, RTU Kota
5. Dr. Deepak Bhatia, Web Master- to upload the Guidelines for Bridge Course for LEEP students admitted during session 2020-21 on University Website.

(Diwakar Joshi)
Dy. Registrar A/A

Ref.: F. No. AICTE/Ag/SCR/Circular/Lateral Entry 2020-21 Date: l7-09-2020

Bridge Course

1. **Bridge Course [For students admitted through Lateral Entry to Second year]**

    It will be an audit course for all branches of UG Engineering & Technology students admitted through Lateral Entry to Second year (through Diploma, B.Sc. and D. Voc.). No Marks will be added. But Student has to pass these Courses; in order have basic knowledge of Mathematics, Programming for Problem Solving and Engineering Graphics/ Engineering Drawing.

2. **Guidelines for Evaluation of Bridge Course**

    As per the Clause 1.3(Viii) of APH AIY 2020-21 for the admission for Diploma Students into Engineering and Technology (UG Courses) under lateral entry, students have to qualify a Bridge Course as per University norms.

S. No.	Course Code	Course Title	Applicable for the LEEP entry students admitted through
1	BTBC-01	Fundamentals of Engineering Mathematics	Diploma and D. Voc. Stream
2	BTBC-02	Programming for Problem Solving	All (Diploma, B. Sc. Stream and D. Voc. Stream)
3	BTBC-03	Engineering Graphics/Drawing	Only for B. Sc. Stream

    a. The Bridge Course shall be an audit course with internal assessment only, the award of which shall not be counted for the overall B. Tech. Course credit and percentage. However, the grades will be reflected in the mark sheet of the student.
    b. The above courses may be completed through classroom teaching/ equivalent Massive Open Online Courses (MOOCs) or Certification Course (to be decided by the Institute), as per RTU guideline.
    c. Institutes/Colleges have to arrange classes as per RTU syllabus at their own level.
    d. This Bridge Course will be implemented from the III Semester. The students have to clear the Bridge Course preferably during the second year.
    e. The Bridge Course will be evaluated on the basis of Internal Assessment to be conducted by the Host Institute before the End term Examination of that semester.
    f. For passing the Bridge Course, candidate must obtain at least Grade D as per RTU norms.

3. **Question Paper pattern for Bridge Course Exam (For the courses opted as classroom teaching)**
    Maximum Marks =100

Bridge Course Subjects	Exam (Hours)	Mid Term Exam (30%)	Final Theory Exam (70%)	Total Maximum Marks
	3 hours	**30**	**70**	**100**

Exam Duration		Final Theory Exam Max. Marks (70)	
3 Hours	**Part A**	10/10	10x2=20
	Part B	5/7	5x4=20
	Part C	3/5	3x10=30

    a. Part-A will contain 10 questions, covering full syllabus of 2 marks each. Word limit for answer is 25 words.

    b. Part-B will contain 5 out of 7 questions of 4 marks each. Word limit is 100 words.

    c. Part-C will contain 3 out of 5 questions of 10 marks each. Questions will be based on Problem Solving skills.

	B. Tech.-BRIDGE COURSE For all students admitted through Lateral Entry (LEEP) to Second year						
S.No.	**Course Code**	**Course Title**	**Hours**		**Marks**		
			L	**P**	**MT**	**FTE**	**Total**
1	BTBC-01	Fundamentals of Engineering Mathematics*	3	-	30	70	100
2	BTBC-02	Programming for Problem Solving*	3	-	30	70	100
3	BTBC-03	Engineering Graphics/Drawing*	3	-	30	70	100

  * The above courses may be completed through classroom teaching/ equivalent Massive Open Online Courses (MOOCs) or Certification Course (to be decided by the Institute), as per RTU guideline

Bridge Course
L= Lecture, **P** = Practical, **MT**=Mid Term, **FTE** = Final Theory Exam

OFFICE OF THE DEAN, ACADEMIC AFFAIRS
RAJASTHAN TECHNICAL UNIVERSITY, KOTA
RTU/Acad./F(17)04/Bridge Course(LEEP)/20/2889-93   Date: 11.01.2021
12.

OFFICE ORDER

As per resolution of 27th (Special) meeting of Faculty of Engineering & Architecture (FOEA) held on 18.11.2020 and subsequent approval of Academic Council vide agenda AC 31.1T in 36th Board of Management at agenda 36.4, the syllabus for the Bridge Course for the students admitted to the 2nd year during session 2020-21 and onwards through Lateral Entry (LEEP) has been approved and being uploaded on website. These bridge courses shall be taken up by LEEP students, as per the following :

SN	Course Code	Course Title	Applicable for the LEEP Entry students admitted through
1	BTBC-01	Fundamental of Engineering Mathematics	Diploma and D. Voc. Stream
2	BTBC-02	Programming for Problem Solving	All (Diploma, B.Sc Stream and D. Voc. Stream)
3	BTBC-03	Engineering Graphics/Drawing	Only for B.Sc. Stream

Encl.: 1. Bridge Course Guidelines
2. Perspective Syllabus

(Prof. D.K. Palwalia)
Dean Academic Affairs

C.C.to:
1. PS to HVC for information
2. Dean FOEA
3. Controller of Examinations, RTU Kota – to initiate action accordingly.
4. Registrar (Member Secretary) Academic Council, RTU Kota
5. Dr. Deepak Bhatia, Web Master- to upload the Guidelines and syllabuses for Bridge Course for LEEP students admitted during session 2020-21 and onwards on University Website.

(Diwakar Joshi)
Dy. Registrar A/A

S.No.	CONTENTS	Hours
	Fundamentals of Engineering Mathematics **BTBC-01**	
1	**Fourier Series:** Periodic functions, Fourier series, Change of intervals, Half range sine and cosine series.	6
2	**Differential and Integral calculus:** Partial Differentiation, Euler's theorem on homogenous functions, Total differentiation, Maxima and Minima of two variables (simple problems). Multiple Integration: Simple Double integrals (Cartesian) and Triple integrals (Cartesian).	10
3	**Vector Calculus:** Gradient, Curl and Divergence, directional derivatives, unit tangent vector.	6
4	**Matrix:** Rank of a matrix, System of linear equations, Eigenvalues and eigenvectors.	6
5	**First order ordinary differential equations:** Order and Degree of differential equation, Linear and Bernoulli's equations, Exact equations. **Ordinary differential equations of higher orders:** Linear Differential Equations of Higher order with constant coefficients	12
	TOTAL	40

	Programming for Problem Solving BTBC-02	
S.No.	**CONTENTS**	**Hours**
1	**Computer Fundamentals:** Flow chart, pseudocode. binary, octal and hexadecimal number system. ASCII, and UNICODE. boolean operations, primary and secondary memory. Difference among low-level & high-level languages. System software, firmware, freeware/open-source, loader, compiler, peripherals.	2
2	**C Programming:** Structure of a 'C' program, Data types. assignment statements, input output statements, If statement, for loops, while loops, do-while loops, switch statement, break statement, continue statement. Data type conversion.	4
3	Functions & program structure (function call and return), scope of variables, parameter passing methods, recursion v/s iteration. one-dimensional arrays, multi-dimensional arrays, character arrays and strings, Pointers ,Pointers arithmetic. Dynamic memory allocation: functions like malloc, calloc, free. Preprocessor, command line arguments, difference between macro and inline function. Structure & Union, typedef. File operations and multi-file handling, sscanf()/sprintf(). Graphics using C.	10
4	The programs shall be developed in C language related with the following concepts: 1. Eight programs using input output statements, if statement, for loops, while loops, do-while loops, switch statement, break statement, continue statement, data type conversion etc. 2. Input names of your friends in an array & print in reverse order. 3. Input two matrices and output third matrix after performing add/subtract the corresponding elements. 4. Four programs using malloc, calloc, free & sscanf()/sprintf() functions. 5. Two programs using macro and online functions. 6. Two programs using structure & union. 7. Two programs using pointers. 8. Three programs belonging to file operations and multi-file handling. 9. Three programs belonging to graphics using C.	24
	TOTAL	**40**

Notes:

1. **For term evalution**, the institute will follow the prescribed guidelines with an additional condition that 60% weight shall be assigned to evlaution of programming skills and 40% to the evlaution of theretiocal knowledge.
2. Contact Hours: 3 Hrs per week.

RAJASTHAN TECHNICAL UNIVERSITY, KOTA
Guideline & Syllabus
Bridge Course 2020-21 and onwards

Credit: NIL **Max. Marks: 100 (IA:30, ETE:70)**

1L+0T+2P

	Engineering Graphics (Only for B.Sc. stream)	
	BTBC-03	
S.No.	**CONTENTS**	**Hours**
1	**Introduction:** Principles of drawing, lines, type of lines, usage of Drawing instruments, lettering, Conic sections including parabola, hyperbola, Rectangular Hyperbola (General method only); Scales-Plain, Diagonal and Vernier Scales.	6
2	**Projections of Point & Lines:** Position of Point, Notation System, Systematic Approach for projections of points, front view & Top view of point, Position of straight lines, line parallel to Both the RPs, Line perpendicular to either of the RPs, Line inclined to one RP and parallel to the other, Line inclined to Both the RPs, Traces of a line (One drawing sheet, one assignment in sketch book).	8
3	**Projection of Planes:** Positions of planes, Terms used in projections of planes, plane parallel to RP, plane inclined to one RP and perpendicular to the other RP, plane perpendicular to Both the RPs, plane Inclined to Both the RPs, True shape of the plane, Distance of a point from plane, Angle between two planes.	8
4	**Projections of Regular Solids:** frustum and truncated solids, those inclined to both the Planes-Auxiliary Views.	9
5	**Section of Solids:** Theory of sectioning, section of prisms and cubes, section of pyramids and Tetrahedron section of Cylinders, section of cones, section of spheres	9
	TOTAL	**40**