

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI  
WORK-INTEGRATED LEARNING PROGRAMMES DIVISION  
FIRST SEMESTER 2018-2019  
COURSE HANDOUT**

**BITS ZG628T Dissertation  
(For students of M. Tech. Software Systems)**

**COURSE INSTRUCTOR: SUPERVISOR OF STUDENT CONCERNED**

**SCOPE AND OBJECTIVES**

Consistent with the student's degree programme, professional background and work-environment, the student will be required to carry out an **original, significant research and/or or development project independently**. The chosen topic of work should be non-trivial, analytical, application-oriented and should involve substantial research and/or development effort based on a specific theme. Students should choose only topics for which the work done can be presented, demonstrated, and defended before a panel of examiners at BITS, Campus. **Any attempt at plagiarism or use of unfair means will result in severe disciplinary action.**

**The student should preferably select an area of work that is considered vital to the employing organization. The student, in consultation with his/her Supervisor, identifies the topic of the Dissertation and prepares the detailed Dissertation outline.**

Each student will also be assigned to one of the BITS faculty identified who will provide feedback/suggestion on the outline and Mid-Semester Report submitted by student and participate in conducting the final Viva/evaluation. Further details of this will be communicated to students later.

The student carries on with the Dissertation adhering to the guidelines provided in the course handout, submitting all the prescribed evaluation components in time. At the end of the semester, the student should submit a comprehensive Dissertation Report to the Institute for evaluation and defends the Dissertation before a panel of faculty examiners from BITS, Pilani.

The student will be evaluated on the basis of the various interim evaluation components, contents of the report and the final Seminar as a Viva-Voce at the end of the semester. **The final grades for Dissertation are Non-Letter grades namely Excellent, Good, Fair and Poor. Since no grade point are attached with Non-Letter grades so the Non-Letter grades do not go into CGPA computation.**

**DISSERTATION EVALUATION SCHEDULE**

<b>S. No</b>	<b>Evaluation Component</b>	<b>Scheduled Last Date for the documents to reach BITS, Pilani</b>
1.	<b># Upload softcopy</b> of Outline Report and Evaluation Sheet on Taxila LMS	July 30, 2018
2.	Allotment of Faculty Mentor	August 13, 2018
3.	BITS faculty provide feedback on the outline	August 20, 2018
4.	<b># Upload Soft Copy</b> of Mid-Semester progress report and Mid-Semester Evaluation Sheet	September 17, 2018
5.	BITS Faculty provide feedback on the Mid-Semester Progress report	September 24, 2018
6.	<b># Upload softcopy</b> of Final Dissertation Report, Pre-Final Evaluation Sheet, and Final Presentation (all in PDF format)	October 15, 2018
7.	Announcement and Students book date <b>for Net Viva*</b>	October 19-24, 2018
8.	<b>Final Viva (online)</b>	November 2018

**\* Students will be able to select Viva date only if the Final Report has been submitted (upload Softcopy) by the due date.**

**# If any portion of the work/report is found to be plagiarized, the student will be liable to severe disciplinary action.**

**Note : Requests for extension of deadlines for submission of documents or evaluation sheets will not be entertained in any case.**

## Important Instructions

1. **Soon after Registration, the student must submit the soft copy of the Dissertation Outline document and the Dissertation Outline evaluation sheet. The document must contain the following items:**
  1. Proposed topic of Dissertation
  2. Broad Academic Area of Work
  3. Background
  4. Scope of work
  5. Objectives
  6. Plan of work (to be done during the semester)
  7. Literature references, and
  8. Particulars of the Supervisor as well as one Additional Examiner (Name, Qualification, Designation, Employing Organization, and contact information).
2. The Mentor can be the Supervisor. The Supervisor will act as guide and one of the examiner for the student. In case the Mentor is not the Supervisor, he/she must be the Additional Examiner. The chosen Supervisor / Additional Examiner must have qualification equivalent to that of the Mentor. **The Supervisor and Examiner must be two different individuals. The same person cannot act as both the Supervisor as well as Examiner for the same student.**
3. Students who are currently enrolled in M.Tech. SS/MM/CM/QM or M.Phil HHSM cannot be Supervisors/ Examiners/ Mentors for other BS/MS Students doing Project Work/Dissertation.
4. The Mid-Semester Evaluation will be based on the progress report describing the Work Progress and achievement, and the Mid-Semester Seminar/Viva to be conducted by the Supervisor.
5. The student should submit the Final Dissertation Report (pdf format) to the Supervisor and Additional Examiner, atleast two weeks before the deadline. The Supervisor should evaluate the final report and conduct the pre-final seminar and viva-voce for the student, alongwith the additional examiner. **The Supervisor and the Additional Examiner should jointly complete the pre-final evaluation sheet and recommend the pre-final grade for the Dissertation.**
6. **Student should upload the soft copy of the final report, Pre-final Evaluation Sheet and final presentation (pdf format) latest by October 15, 2018**
7. We do understand that all BITS WILP students are employed professionals with their own professional and personal constraints. We expect all students to coordinate with their Supervisor and Examiner and submit all documents and evaluation sheets as per schedule given in the handout.
8. **The students must submit the Outline, Mid-Semester Progress Report and Final Report in the specified format (Check the instruction on E-learn Portal for the same) by the specified deadlines, even if the evaluation by the Supervisor/Examiner is not available by the deadline.** The scanned copy of the evaluation sheets duly signed by the Supervisor and Examiner can be submitted online separately within one week from the specified deadline, but before the scheduled final viva date.
9. **Requests for extension of deadlines for submission of documents or evaluation sheets will not be entertained irrespective of the reasons.**

10. The Cover Page, Title Page, Abstract and the Certificate from the Supervisor must be prepared in the Prescribed format (with appropriate page fonts and layout) as given in annexures to this course handout.
11. The report should be properly organized and neatly formatted with all the elements required for a technical report. It should be adequately descriptive and elaborate and should be self-contained with respect to the chosen topic. **The title should be adequately descriptive, precise and must reflect scope of the actual work done.** Each chapter should start from a fresh page. Each chapter should be atleast two pages. The report should be neatly word-processed in A4 Size paper, printed on one side of the sheet and presented in a 'Portrait' layout (and NOT in 'Landscape' layout). **Printouts of Powerpoint presentations or product documentation (like program code listing or user manual) are not acceptable as a written report.**
12. **In addition to the pre-final evaluation done by the Supervisor and Examiner, the student must be prepared to appear for an online Viva (through WebEx) on the chosen date during November 2018 to present and defend the Dissertation before a panel of independent examiners. The final grade in Dissertation would be based on the Supervisor's evaluation as well as the independent evaluation by BITS Faculty.**
13. During the Viva each student will be required to make a technical presentation for about 20 minutes using Microsoft PowerPoint. The presentation will be followed by viva-voce for about 10 minutes. Students doing software development projects must be prepared to demonstrate their software product during their presentation.
14. The dates for the final viva-voce will be announced through the BITS WILP website by **October 19-24, 2018**. Only those students, whose **soft copy of Final Report & Pre-Final Evaluation Sheet and Presentation** duly signed and graded by the Supervisor and Additional Examiner is uploaded by the specified deadline, will be eligible to choose dates for the final viva-voce.
15. **Any student who fails to submit the Outline, Mid-Semester Evaluation or the Final Report by the stipulated deadline, and/or fails to appear for viva-voce might be reported as Required to Register Again (RRA) in Dissertation.**
16. Under the following conditions, students who appear for their final viva voce may also be reported RRA (Required to Register Again) after evaluation, under the following conditions:
  - a. Student is unable to technically present/defend the work done.
  - b. Technical knowledge/competence of the student is inadequate.
  - c. The work report submitted is inadequate or incomplete.
  - d. The work/report is found to be plagiarized.
17. **If any portion of the work/report is found to be plagiarized, the student will be liable to severe disciplinary action.**

**Dean, WILPD**

## Guidelines for choosing topics for Dissertation

**Each student should work independently on a chosen topic. Two or more students should not do any project jointly. The chosen topic of work should be non-trivial, analytical, application-oriented and should involve substantial original research and/or development effort based on a specific theme. Any attempt at plagiarism or use of unfair means will result in severe disciplinary action.**

Students should choose only topics for which the work done can be **presented, demonstrated, and defended** before a panel of examiners. Students may note that in cases where no demonstration is perceived to be possible by the student / employer, due to technical or professional reasons, a letter on the official letterhead of the employer clearly stating this infeasibility, duly signed by the Project Manager of the student (or equivalent officer or higher) and to be uploaded by the students by the due date for upload the final report. **However, BITS-Pilani reserves the right to examine the validity of claims made and insist on a live demonstration in presence of its nominees.**

**Mere configuration, installation, testing and routine maintenance, support or management of systems or equipments will not be considered adequate for a Dissertation. Trivial, Small projects which are commonly done as assignments in courses are not acceptable as Dissertation. Mere survey of literature/data collection would also not be acceptable as a Dissertation.**

- Work of the organization towards Certification of Quality Management (like ISO, CMM) should not be included. This will be viewed as organization's effort.
- You routine work cannot be submitted as it is.
- The work undertaken by you should be clearly visible and should pertain to the work accomplished during the current semester.
- The work should not result in mere compilation of information pertaining to organization/project handled. It should be adequately described.

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### **Broad Areas for Dissertation of MTech. (Software Systems)**

1. Artificial Intelligence
2. Computer Graphics
3. Compiler Construction
4. Computer Networking
5. Database Systems and Applications
6. Data Warehousing and/or Data Mining
7. E-Business
8. Embedded Systems
9. Pervasive Computing
10. Internetworking Technologies
11. Multimedia Computing
12. Network Security
13. Microprocessor Based System Design
14. Operating Systems
15. Real Time Systems
16. Software Engineering & Management
17. Software Testing and Quality Assurance
18. Software Architectures
19. Wireless and Mobile Computing
20. Telecom Switching Systems and Networks
21. Data Structures and Algorithms Design
22. Computer Organization and Software Systems
23. Cloud Computing
24. Data Storage Techniques and Networks
25. Object Oriented Analysis & Design
26. Machine Learning

**<Dissertation Title>**

**BITS ZG628T: Dissertation**

by

<Student's Name>

<Id No.>

**Dissertation work carried out at**

**<Name of the Employing Organization, Location>**



**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE  
PILANI (RAJASTHAN)**

November 2018

# **<Dissertation Title>**

**BITS ZG628T: Dissertation**

by

<Student's Name>

ID No.

**Dissertation work carried out at**

**<Name of the Employing Organization, Location>**

Submitted in partial fulfillment of M.Tech. Software Systems degree  
programme

Under the Supervision of  
<Name and Designation of Supervisor,  
Employing Organization, Location>



**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE  
PILANI (RAJASTHAN)**

November, 2018

**CERTIFICATE**

This is to certify that the Dissertation entitled <Title of the Dissertation> and submitted by <Name of the student> having ID-No. <BITS Id Number of the Student> for the partial fulfillment of the requirements of M.Tech. <Name of the degree> degree of BITS, embodies the bonafide work done by him/her under my supervision.

\_\_\_\_\_

Signature of the Supervisor

Place : \_\_\_\_\_

Date : \_\_\_\_\_

\_\_\_\_\_  
Name, Designation & Organization & Location

## Sequence of items in the Report

**The following sequence may be followed in the preparation of the Mid-Semester Progress Report and document the work done till the Mid-Semester submission date. Same Report will culminate into the Final Report.**

1. Cover Page (On the **hardbound** cover)
2. Title Page (Inner Cover Page)
3. Certificate from the Supervisor
4. Abstract
5. Acknowledgements
6. (Detailed) Table of Contents (with page numbers).
7. List of Figures (with figure number, figure titles and page numbers)
8. List of Tables with table number, table title and page number.
9. Chapter 1: Introduction (Page No.1 should start with Chapter 1)
10. Chapter 2, 3, etc.
11. Summary
12. Conclusions and Recommendations (if any)
13. Directions for future work (if any)
14. Bibliography (if any) (Please refer to the sample format given below)
15. References (if any) ((Please refer to the sample format given below)
16. Appendices (if any)
17. Checklist for the items in the report

**Note:** Please do not include any header or footer in any page of the report. Only page numbers should be mentioned at the bottom center of each page. For guidelines regarding preparation of the report, please consult your textbook for the course on Technical Report Writing / Technical Communication.

## Format for giving Bibliography or References

Bibliography or References can be included in the report according to the format given in the following examples. References should be cited properly inside the text of the report.

### 1. BOOK

Author. Title of Book. City of Publication: Publisher, Year.

**One Author Example:** Brinkley, Alan. The Unfinished Nation. New York: Knopf, 1993.

**Two or More Authors Example:** Rowe, Richard, and Larry Jeffus. The Essential Welder: Gas Metal Arc Welding Classroom Manual. Albany: Delmar, 2000.

### 2. SCHOLARLY JOURNAL ARTICLES

Author. "Title of Article." Title of Journal Volume number (Year): Page(s).

**Example:** Davis, William D., Thomas Cleary, Michelle Donnelly, and Samuel Hellerman. "Using Sensor Signals to Analyze Fires." Fire Technology 39 (2003): 295-308.

### 3. CONFERENCE PROCEEDINGS

Editor names(s). Title of publication/conference. Name of conference. Dates and place of conference. Place of publication, publisher, and date of publication.

**Example:** Vivian VL, editor. Child abuse and neglect: a medical community response. First AMA National Conference on Child Abuse and Neglect; 1984 Mar 30-31; Chicago. Chicago: American Medical Association; 1985.



#### **4. DISSERTATION AND THESES**

Author name. Full title of the report. Publication type. Location and name of institution. Date of publication.

**Dissertation Example:** Youssef NM. School adjustment of children with congenital heart disease [Dissertation]. Pittsburgh (PA): University of Pittsburgh; 1988.

**Thesis Example:** Devins GM. Helplessness, depression, and mood in end-stage renal disease [masters thesis]. Montreal, Quebec: McGill University;1981.

#### **5. A Private Communication**

Wonham W.m. (1982) Private Communication.

#### **6. Format for Citation of References within the Report**

Example of citing a journal paper listed in references, inside the text of the report:  
..... These results have been presented by Kalman and Pucy [2] .....

**Birla Institute of Technology & Science, Pilani**  
**Work-Integrated Learning Programmes Division**  
**First Semester 2018-2019**  
**BITS ZG628T: Dissertation**

**ABSTRACT**

**BITS ID No.** : \_\_\_\_\_

**NAME OF THE STUDENT** : \_\_\_\_\_

**EMAIL ADDRESS** : \_\_\_\_\_

**STUDENT'S EMPLOYING ORGANIZATION & LOCATION** : \_\_\_\_\_

**SUPERVISOR'S NAME** : \_\_\_\_\_

**SUPERVISOR'S EMPLOYING ORGANIZATION & LOCATION** : \_\_\_\_\_

**SUPERVISOR'S EMAIL ADDRESS:** \_\_\_\_\_

**DISSERTATION TITLE** : \_\_\_\_\_

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**ABSTRACT : (Should be neatly word processed; should not exceed one page)**

**Broad Academic Area of Work:** (Specify one from the areas listed in the guidelines)

**Key words** (Specify the technical keywords of the Project in alphabetical order)

\_\_\_\_\_  
**Signature of the Student**

**Name:** \_\_\_\_\_

**Date:**

**Place:**

\_\_\_\_\_  
**Signature of the Supervisor**

**Name:** \_\_\_\_\_

**Date:**

**Place:**

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI**  
**WORK-INTEGRATED LEARNING PROGRAMMES DIVISION**  
**First Semester 2018-2019**

**BITS ZG628T: Dissertation EC-1: Dissertation Outline Evaluation Sheet**

**Upload Softcopy of Outline Report and Evaluation Sheet on on BITS LMS Taxila  
July 30, 2018**

**ID No.** : \_\_\_\_\_

**NAME OF THE STUDENT** : \_\_\_\_\_

**EMAIL ADDRESS** : \_\_\_\_\_

**STUDENT'S EMPLOYING ORGANIZATION & LOCATION** : \_\_\_\_\_

**SUPERVISOR'S NAME** : \_\_\_\_\_

**SUPERVISOR'S EMPLOYING ORGANIZATION & LOCATION** : \_\_\_\_\_

**PROPOSED DISSERTATION TITLE:** \_\_\_\_\_

\_\_\_\_\_

Student must enclose **the Dissertation Outline document** in proper format (as given on the next page) containing details of proposed topic of Dissertation Work, background, scope of work, objectives, plan of work, literature references and particulars of the Supervisor as well as one additional examiner in terms of Name, Designation, Qualification and contact information. The student's Mentor should either be the Supervisor or the Additional Examiner. **The Supervisor and Additional Examiner should verify and sign at the end of the Dissertation Outline document.**

**DISSERTATION OUTLINE EVALUATION**

*(Please put a tick ( ✓ ) mark in the appropriate box)*

EC No.	Component	Excellent	Good	Fair	Poor
1.	Dissertation Outline				

	Supervisor	Additional Examiner
Name		
Qualification		
Designation		
Employing Orgn and Location		
Phone No. (with STD Code)		
Email Address		
Signature		
Date		

**Birla Institute of Technology & Science, Pilani  
Work-Integrated Learning Programmes Division  
First Semester 2018-2019**

**BITS ZG628T : Dissertation Outline**

**ID No.** : \_\_\_\_\_

**NAME OF THE STUDENT** : \_\_\_\_\_

**EMAIL ADDRESS** : \_\_\_\_\_

**STUDENT'S EMPLOYING ORGANIZATION & LOCATION** : \_\_\_\_\_

**SUPERVISOR'S NAME** : \_\_\_\_\_

**SUPERVISOR'S EMPLOYING ORGANIZATION & LOCATION** : \_\_\_\_\_

**SUPERVISOR'S EMAIL ADDRESS** : \_\_\_\_\_

**DISSERTATION TITLE** : \_\_\_\_\_

**Please prepare the outline as a separate document with the following sections alongwith the above identification information.**

1. Cover Page with ID No., Name, Course Number, Course Title and Dissertation Title, Broad Academic Area of Work:
2. Background (Relevance of the project to the current work environment in the employing organization)
3. Objectives
4. Scope of Work (to be done by the student independently)
5. Plan of Work (Work to be done during the semester)
6. Literature References
7. Particulars of the Supervisor and Examiner
8. Remarks of the Supervisor

**Signature of Student**

**Name** \_\_\_\_\_

**Signature of Supervisor**

**Name** \_\_\_\_\_

**Signature of Additional Examiner**

**Name** \_\_\_\_\_

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI**  
**WORK-INTEGRATED LEARNING PROGRAMMES DIVISION**  
**First Semester 2018-2019**

**BITS ZG628T : Dissertation Mid-Semester Progress Evaluation Sheet**

**Upload Softcopy of Mid-Semester Progress Report and Mid-Semester Evaluation Sheet by  
September 17, 2018**

**ID No.** : \_\_\_\_\_

**NAME OF THE STUDENT** : \_\_\_\_\_

**EMAIL ADDRESS** : \_\_\_\_\_

**SUPERVISOR'S NAME** : \_\_\_\_\_

**DISSERTATION TITLE** : \_\_\_\_\_

**Details of work done till date (with reference to Outline)** : Attach a separate word processed document, giving brief details of work done.

**Plan of work yet to be done** : Attach a separate word processed document, specifying the milestones & deliverables.

**EVALUATION**

**DISSERTATION PROGRESS EVALUATION** (Please put a tick ( ✓ ) mark in the appropriate box)

EC No.	Component	Excellent	Good	Fair	Poor
1.	Dissertation Outline				
2.	Work Progress & Achievements				
3.	Initiative and Originality				
4.	Documentation & Expression				
5.	Research & Innovation				
6.	Relevance to the work Environment				

	Supervisor	Additional Examiner
Name		
Qualification		
Designation		
Employing Orgn and Location		
Phone No. (with STD Code)		
Email Address		
Signature		
Date		

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI**  
**WORK-INTEGRATED LEARNING PROGRAMMES DIVISION**  
**First Semester 2018-2019**

**BITS ZG628T : Dissertation EC-3 Pre-Final Evaluation Sheet**

**Upload Softcopy of Final Dissertation Report, Pre-Final Evaluation Sheet, and Final Presentation by October 15, 2018**

**ID No.** : \_\_\_\_\_

**NAME OF THE STUDENT** : \_\_\_\_\_

**EMAIL ADDRESS** : \_\_\_\_\_

**NAME OF THE SUPERVISOR** : \_\_\_\_\_

**DISSERTATION TITLE** : \_\_\_\_\_

***Dissertation Final Evaluation*** (Please put a tick ( ✓ ) mark in the appropriate box)

S No.	Evaluation Component	Excellent	Good	Fair	Poor
1.	Final Dissertation Report				
2.	Final Seminar and Viva-Voce				

S.No.	Evaluation Criteria	Excellent	Good	Fair	Poor
1	Technical/Professional Competence				
2	Work Progress and Achievements				
3	Documentation and expression				
4	Initiative and Originality				
5	Research & Innovation				
6	Relevance to the work environment				

Please **ENCIRCLE** the Recommended Final Grade: Excellent / Good / Fair / Poor

**Remarks of the Supervisor:**

	Supervisor	Additional Examiner
Name		
Qualification		
Designation		
Employing Organization & Location		
Phone Number		
Mobile Number		
Email Address		
Signature		
Place & Date		

**Checklist of items for the Final Dissertation Report**  
This checklist is to be attached as the last page of the report.

**This checklist is to be duly completed, verified and signed by the student.**

1.	<b>Is the final report neatly formatted with all the elements required for a technical Report?</b>	Yes / No
2.	Is the Cover page in proper format as given in Annexure A?	Yes / No
3.	Is the Title page (Inner cover page) in proper format?	Yes / No
4.	(a) Is the Certificate from the Supervisor in proper format? (b) Has it been signed by the Supervisor?	Yes / No Yes / No
5.	Is the Abstract included in the report properly written within one page? Have the technical keywords been specified properly?	Yes / No Yes / No
6.	Is the title of your report appropriate? <b>The title should be adequately descriptive, precise and must reflect scope of the actual work done.</b> Uncommon abbreviations / Acronyms should not be used in the title	Yes / No
7.	Have you included the List of abbreviations / Acronyms?	Yes / No
8.	Does the Report contain a summary of the literature survey?	Yes / No
9.	Does the Table of Contents include page numbers? (i). Are the Pages numbered properly? (Ch. 1 should start on Page # 1) (ii). Are the Figures numbered properly? (Figure Numbers and Figure Titles should be at the bottom of the figures) (iii). Are the Tables numbered properly? (Table Numbers and Table Titles should be at the top of the tables) (iv). Are the Captions for the Figures and Tables proper? (v). Are the Appendices numbered properly? Are their titles appropriate	Yes / No Yes / No Yes / No Yes / No Yes / No Yes / No
10.	Is the conclusion of the Report based on discussion of the work?	Yes / No
11.	Are References or Bibliography given at the end of the Report? Have the References been cited properly inside the text of the Report? Are all the references cited in the body of the report	Yes / No Yes / No Yes / No
12.	Is the report format and content according to the guidelines? The report should not be a mere printout of a Power Point Presentation, or a user manual. Source code of software need not be included in the report.	Yes / No

**Declaration by Student:**

I certify that I have properly verified all the items in this checklist and ensure that the report is in proper format as specified in the course handout.

**Place:** \_\_\_\_\_

\_\_\_\_\_  
**Signature of the Student**

**Date:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**ID No.:** \_\_\_\_\_