# ANALYSIS ENGINEER (MTI)

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<th>DEPARTMENT/UNIT</th>
<th>Mechanical and Aerospace Engineering</th>
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<td>FACULTY/DIVISION</td>
<td>Faculty of Engineering</td>
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<tr>
<td>CLASSIFICATION</td>
<td>HEW Level 6</td>
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<td>WORK LOCATION</td>
<td>Clayton campus</td>
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## ORGANISATIONAL CONTEXT

There’s a certain feeling you get from working at Monash University. It’s the feeling that you’re a part of something special. Something significant. And that’s because you’re not just starting your career, or taking on a bigger challenge. You’re making a real contribution – surrounded by energetic, inspiring people who are driven to make a difference as well. Monash is a place where you’ll be able to develop your career in exciting, sometimes unexpected ways – putting you in the best possible position for a rewarding future. Discover more at [www.monash.edu](http://www.monash.edu).

The [Faculty of Engineering](http://www.monash.edu) is one of the largest in Australia, renowned worldwide for the quality and calibre of our teaching, research and graduates. We offer a comprehensive range of undergraduate, graduate, postgraduate and higher degree by research programs in a wide range of engineering disciplines. Our research activities provide a platform for establishing a thriving educational enterprise and our staff are committed to creating a dynamic learning environment. The research activities range from fundamental studies to research with a strong applications orientation. To learn more about the Faculty of Engineering, please visit our website: [monash.edu/engineering](http://monash.edu/engineering).

The [Department of Mechanical and Aerospace Engineering](http://monash.edu/engineering/departments/mechanical) aims to educate the next generation of leaders in the profession of mechanical engineering, generate new knowledge and insight into the processes that govern our discipline, and provide service to the community, our profession and industry. We are the largest department within the Faculty in terms of student numbers, offering a range of undergraduate and higher degree programs and a strong and ever growing contingent of students working towards a PhD or Master’s Degree. Research is a vital part of the Department’s activities and we are renowned for our expertise and world class facilities. For more information about our Department and the work we do, please visit our website: [monash.edu/engineering/departments/mechanical](http://monash.edu/engineering/departments/mechanical).

The [Maintenance Technology Institute (MTI)](http://monash.edu/engineering/mti) is a commercially orientated, professional research and engineering organisation located at Monash University, which provides focused and comprehensive research and development and high - level technical services for the mining and heavy engineering industries. MTI has been providing professional engineering services to the major mining companies; such as BHP, Rio Tinto, Glencore, Anglo American; since 2000. MTI has also developed Real - Time Monitoring solutions to manage the structural integrity of various mining equipment, with a focus towards improving reliability and productivity. For more information about our institute and the work we do, please visit our website: [monash.edu/engineering/mti](http://monash.edu/engineering/mti).
POSITION PURPOSE

The Analysis Engineer will be responsible for undertaking modelling, designs, calculations, data analysis and interpretation in relation to heavy engineering equipment used in the mining industry. The equipment involved include mobile equipment and fixed plants. Some of the equipment commonly dealt with are: draglines, shovels, drills, large mining trucks, excavators, stackers, stacker reclaimers, ship loaders.

Reporting Line: The position reports to the Managing Director of the Maintenance Technology Institute (MTI) under broad direction

Supervisory Responsibilities: Not applicable

Financial Delegation: Not applicable

Budget Responsibilities: Not applicable

KEY RESPONSIBILITIES

1. Conduct Finite Element (FE) modelling and analysis of structures, including fixed and mobile equipment used in the mining industry
2. Undertake data analysis and interpretation, including detailed stress analysis from field measurements, to derive necessary conclusions, ensuring consistency, integrity and reliability of data
3. Undertake simulation and analysis of structural and mechanical equipment as relevant using either commercial software or general methods of analysis. A basic understanding of electrical and hydraulic sub systems would be advantageous.
4. Conduct calculations relating to fracture mechanics in order to ascertain stress and fracture resistance
5. Design structures and machine components according to relevant Australian & International Standards
6. Proven ability to take a lead technical role in project delivery
7. Liaise with customers directly to understand project needs and deliverables
8. Design optimum monitoring plans in collaboration with the MTI senior engineers and implement monitoring and data acquisition strategies on equipment in the field
9. Actively participate in and implement continuous improvement activities relating to data collection, analysis, reporting and presentation, practices/protocols, quality assurance standards and customer service excellence
10. Maintain close and clear communication with site staff regarding field work, including in relation to planning and scheduling of work, implementation, housekeeping, removal of equipment and closure
11. Ensure all relevant statutory regulations, site safety requirements and Monash safety requirements are followed while undertaking field work, including monitoring MTI or site equipment are well looked after against damage and misuse
12. Ensure safety and wellbeing of MTI and any other contract or site staff involved in field work, including during travelling for field work

KEY SELECTION CRITERIA

Education/Qualifications

1. The appointee will have:
   • A degree in civil (structural) or mechanical engineering with a minimum 3 years industry experience in design and analysis
Knowledge and Skills

2. Proven technical and analytical proficiency and experience within structural or mechanical engineering

3. Sound knowledge and proficiency in FE modelling with ANSYS Workbench & SolidWorks

4. Excellent understanding of relevant Australian & International Standards

5. Excellent analytical, technical and data analysis skills and a demonstrated capacity to apply effective technical methods, processes and systems and analyse data/trends for strategic modelling, make recommendations, using this information to monitor progress and resolve issues

6. Excellent oral and written communication skills, including strong presentation and report writing skills with proven ability to effectively analyse information and produce clear, succinct reports and documents which requires interaction with others

7. Ability to liaise with customers to identify project needs and deliver project outcomes professionally

8. Well-developed organisational and time management skills, including the ability to plan and organise work to meet priorities and deadlines

9. Ability to work as an effective member of a team and provide effective supervision and on the job training to team members

10. Sound computer literacy, including the ability to learn new software packages, and a basic understanding of network communication

11. Flexibility to undertake travel, field work, and emergency or urgent work to fulfil customer needs

OTHER JOB RELATED INFORMATION

- Travel (e.g. to remote sites, both interstate and overseas) on short notice to carry out fieldwork, will be required from time to time, depending on business and customer requirements
- Shift work, overtime and out of hours work may be required (including evenings, weekends and public holidays), for the successful delivery of projects
- During peak periods of work, the taking of leave may be restricted

LEGAL COMPLIANCE

Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including: Equal Employment Opportunity, supporting equity and fairness; Occupational Health and Safety, supporting a safe workplace; Conflict of Interest (including Conflict of Interest in Research); Paid Outside Work; Privacy; Research Conduct; and Staff/Student Relationships.