ANALYSIS ENGINEER (MTI)

DEPARTMENT/UNIT: Mechanical and Aerospace Engineering

FACULTY/DIVISION: Faculty of Engineering

CLASSIFICATION: HEW Level 5

DESIGNATED CAMPUS OR LOCATION: Clayton campus

ORGANISATIONAL CONTEXT

At Monash, work feels different. There’s a sense of belonging, from contributing to something groundbreaking – a place where great things happen. You know you’re part of something special and purposeful because, like Monash, your ambitions drive you to make change.

We have a clear purpose to deliver groundbreaking intensive research; a world-class education; a global ecosystem of enterprise – and we activate these to address some of the challenges of the age, Climate Change, Thriving Communities and Geopolitical Security.

We welcome and value difference and diversity. When you come to work, you can be yourself, be a change-maker and develop your career in exciting ways with curious, energetic, inspiring and committed people and teams driven to make an impact – just like you.

We champion an inclusive workplace culture for our staff regardless of ethnicity or cultural background. We have also worked to improve gender equality for more than 30 years. Join the pursuit of our purpose to build a better future for ourselves and our communities – #ChangeIt with us.

The Faculty of Engineering 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.

The Department of Mechanical and Aerospace Engineering 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: www.monash.edu/engineering/departments/mechanical.

The Maintenance Technology Institute (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: www.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 includes 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 relevant Team Leader within the Maintenance Technology Institute (MTI) under broad direction

Supervisory Responsibilities: Not applicable

Financial Delegation: Not applicable

Budgetary Responsibilities: Not applicable

KEY RESPONSIBILITIES

1. Undertake data analysis and interpretation, including detailed stress analysis from field measurements, to derive necessary conclusions, ensuring consistency, integrity and reliability of data, under the direction of senior engineers

2. Identify, analyse, and interpret trends or patterns in complex data sets using statistical techniques and statistical analysis software and programming languages such as Python, and SQL

3. Undertake simulation and analysis of structural and mechanical equipment as relevant using either commercial software or general methods of analysis

4. Conduct Finite Element (FE) modelling and analysis of structures, including fixed and mobile equipment used in the mining industry

5. Conduct calculations relating to fatigue of welded structures to estimate fatigue life of structures.

6. Design structures and machine components according to relevant Australian & International Standards

7. Assist with structural inspections in the field of fixed and mobile equipment used in the mining industry

8. Liaise with customers directly to understand project needs and deliverables
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 field staff, in relation to positioning of structural monitoring sensors

11. Provide support and guidance to remote services support team to ensure accuracy and integrity of measured data

12. Other duties as directed at time to time

KEY SELECTION CRITERIA

Education/Qualifications
1. The appointee will have:
   ● A degree in civil (structural) or mechanical engineering with an aptitude towards design and analysis; or
   ● substantial relevant skills and work experience; or
   ● an equivalent combination of relevant experience and/or education/training.

Knowledge and Skills
2. Demonstrate technical and analytical proficiency in structural or mechanical engineering
3. Sound knowledge and proficiency in FE modelling with ANSYS Workbench & SolidWorks
4. 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, and a commitment 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

● Appointment to the position will be subject to the satisfactory completion of medical assessment(s) in accordance with various mining and statutory legislations
● All personnel during site visits will be subjected to random alcohol and drug screening
● Safety inductions and training will be mandatory in accordance with relevant site requirements
● Travel to other campuses of the University may be required
● Travel to remote sites, both interstate and overseas, on short notice will be required
• Shift work, overtime and out of hours work may be required (including evenings, weekends and public holidays), for the successful delivery of projects
• A valid Australian driver's licence is required
• There may be a requirement to work additional hours from time to time
• There may be peak periods of work during which taking of leave may be restricted

GOVERNANCE

Monash University expects staff to appropriately balance risk and reward in a manner that is sustainable to its long-term future, contribute to a culture of honesty and integrity, and provide an environment that is safe, secure and inclusive. Ensure you are aware of and adhere to University policies relevant to the duties undertaken and the values of the University. This is a standard which the University sees as the benchmark for all of its activities in Australia and internationally.